SOIL INVESTIGATION MCGRANAHAN AND CARLSON COMMERCE CENTER II SANTA FE SPRINGS, CALIFORNIA

APRIL 21, 1989

FINAL REPORT



McLaren Environmental Engineering

4716

SOIL INVESTIGATION
MCGRANAHAN AND CARLSON
COMMERCE CENTER II
SANTA FE SPRINGS, CALIFORNIA

APRIL 21, 1989

FINAL REPORT





April 21, 1989

Mr. Stephen M. Carlson McGranahan Carlson and Company 1000 Corporate Pointe, Suite 105 Culver City, California 90230

Dear Mr. Carlson:

SOIL INVESTIGATION AT COMMERCE CENTER II: FINAL REPORT

the results of attached report describes The investigations at the Commerce Center II property in Sante Fe Springs, California. This report also summarizes the results of previous soil investigations at the site. Based on the data contained in these reports we have estimated that the volume of soil in place which will require remediation prior to development is approximately 121,000 cubic yards This estimate does not include soil (146,000 cubic yards excavated). which may require remediation as a result of underground pipeline leaks or random discharge of crude oil not associated with visible surface We have included a contingency of 25 percent to account for this additional soil, bringing the total estimated volume of soil in place requiring remediation to 152,000 cubic yards (182,000 cubic yards excavated).

The breakdown of the estimated volume soil including the contingency for additional soil in each area is as follows:

Area 2 32,000 cy (in place); 39,000 cy (excavated)
Area 3 20,000 cy (in place); 24,000 cy (excavated)
Area 4 18,000 cy (in place); 21,000 cy (excavated)
Area 5A 39,000 cy (in place); 47,000 cy (excavated)
Area 5B 43,000 cy (in place); 52,000 cy (excavated)

If you have any questions about this report, please contact me at (714) 756-2667.

Very truly yours,

Dennis Dineen, Principal Scientist

cc: Grant B. Cooper, Jr.

SOIL INVESTIGATION
MCGRANAHAN AND CARLSON
COMMERCE CENTER II
SANTA FE SPRINGS, CALIFORNIA

APRIL 21, 1989

FINAL REPORT

TABLE OF CONTENTS

]	<u>PAGE</u>
INTR	ODUC:	ΓI	ON									•					•	•	•	•	•	•	•	•		1
SCOP	E OF	I	NV	ES	TI	G.	ΓA	'IC	ON		•	•			•											3
RESU:	LTS.								•		•	•	•	•	•	•		•			•					5
DISC	ussi	ON	1 0	F	RE	S	UI	T:	S .		•	•		•	•		•	•	•		•					14
	AREA	A	2.																							15
	AREA																									
	AREA	A	4.																					•		19
	AREA	A	5A																						•	21
	AREA																									
PRIO	RITY	P	OL	LU	TA	N	T	Αì	NA]	LY:	SI	s.														29
MICR	OBIA	L	SC	RE	EN	I	NG	;	•						•			•	•						•	29
SUMM	ARY A	AN	ID (CO	NC	L	US	:10)N	5.							•									32

LIST OF TABLES

	<u>P</u>	<u> GE</u>
TABLE 1:	Summary of Total Petroleum Hydrocarbon Concentrations - EPA Method 418.1	6
TABLE 2:	Summary of Priority Pollutant Analyses	13
TABLE 3:	Estimated Volumes of Crude Oil Affected Soils in Each Sump	27
TABLE 4:	Microbial Populations in Soil from 10 to 40 feet	30
TABLE 5:	Summary of Estimated Volumes (in Cubic Yards) of Soil That Require Remediation at The McGranahan, Carlson Commerce Center II	33
	LIST OF FIGURES	
FIGURE 1:	McGranahan Carlson Commerce Center II Site Plan	2
FIGURE 2:	Soil Investigation in Area 2	16
FIGURE 3:	Soil Investigation in Area 3	18
FIGURE 4:	Soil Investigation in Area 4	20
FIGURE 5:	Soil Investigation in Area 5A	23
FIGURE 6:	Soil Investigation in Area 5B	26
FIGURE 7:	Soil Microbial Populations as Influenced by Depth and Hydrocarbons	31

LIST OF APPENDICES

APPENDIX A: Laboratory Data Sheets and Chain-of-Custody forms

- Trenching

APPENDIX B: Laboratory Data Sheets and Chain-of-Custody forms

- Soil Borings

APPENDIX C: Soil Boring Logs

APPENDIX D: Cross Sections:

Figure 1: Soil Containing Crude Oil in Area 2 Sump B

Figure 2: Soil Containing Crude Oil in Area 3 Summap E

Figure 3: Soil Containing Crude Oil in Area 3 Sump F

Figure 4: Soil Containing Crude Oil in Area 4 Sump A

Figure 5: Soil Containing Crude Oil in Area 5A Sump I

Figure 6: Soil Containing Crude Oil in Area 5B Sump E

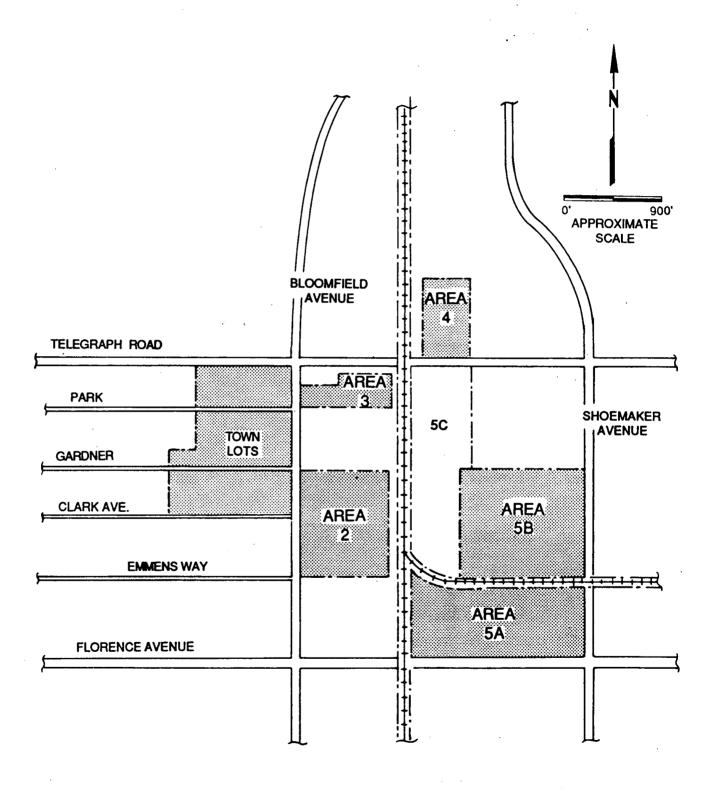
Figure 7: Soil Containing Crude Oil in Area 5B Sump I

INTRODUCTION

This report summarizes the results of all soil investigations conducted at the McGranahan and Carlson Commerce Center II (Commerce Center) located in Santa Fe Springs, California (Figure 1). The purpose of the soil investigation was to estimate the volume of soil containing crude oil which would require remediation prior to the planned development of the property.

The results of previous work conducted on this parcel are contained in the following reports:

- A Study of Abandoned Oil and Gas Wells and Methane and Other Hazardous Gas Accumulations. Final report prepared for Department of Conservation Division of Oil and Gas. GeoScience Analytical Inc., October 10, 1986.
- Site Investigation at the Mobil Oil Co./Santa Fe Energy Company facility in Santa Fe Springs California. Ecology and Environment Inc., January 20, 1988.
- Further Evaluation of Hazardous Gas Potential in the Santa Fe Spring Oil Fields Final Report. Geoscience Analytical Inc., January 28, 1988.
- Draft Final Phase I Site Assessment Santa Fe Energy Mobil Oil Field Properties. Ebasco Services Incorporated, August 1988.
- . Soil Investigation Proposed Industrial Development Located Between Norwalk Boulevard and Shoemaker Avenue and Florence Avenue and Romandel Street in the City of Santa Fe Springs, California. Western Laboratories, October 21, 1988.
- Phase II Site Assessment Final Report Santa Fe Energy Mobil Oil Field Properties. Ebasco Services Incorporated, November 1988.
- Psomas Digitized Base Maps Topographic survey for existing oil sumps. November 17, 1988.
- Soil Investigation at McGranahan and Carlson Commerce Center II -Santa Fe Springs, California. McLaren Environmental Engineering, March 2, 1989.





Aerial photographs documented the existence of 45 sumps on the Commerce Center site. The Ebasco report identified additional sumps resulting in a combined total of as many as 56 sumps on the site. The 45 sump locations from the aerial photographs were digitized on a computer generated base map by Psomas Engineering which is the basis of the figures in this report. Seven additional sumps which were indicated by the Ebasco report and which were supported by analytical data and field observations showing high petroleum hydrocarbon concentrations in the soil are also shown on the figures in this report. The results of soil investigations at these sumps provide the basis for the estimates of the volume of soil requiring remediation.

The sumps which were identified on the property were categorized into three groups on the basis of past usage:

- 1. Well development sumps (mud pits) were pits dug adjacent to wells during well construction to receive discharged drilling muds, oil, and water from well construction and development. These sumps were observed on the 1928 aerial photograph when the wells were newly constructed. After the wells were in operation, the sumps were backfilled with native soil.
- 2. Oil/water separation sumps were typically double sumps used to separate recoverable oil from water and were centrally located within a group of producing wells. These sumps were observed on aerial photographs from 1928 through 1945 or later.
- 3. Tank bottom sludge sumps were located adjacent to above ground tanks used to store the pumped product. Sludge which accumulated in the tank bottoms was periodically cleaned from the tanks and discharged into the adjacent sumps. These sumps were observed on aerial photographs from 1928 through 1945 or later.

It was assumed that the distribution of crude oil in the soil at these former sump locations was directly related to the past usage of the sump, i.e., that concentrations would be low to moderate in the well development and oil/water separation sumps and high in the tank bottom sludge sumps. This assumption was based on the fact that the well development sumps were in use for relatively short periods during well construction and development and that drilling muds and product would be recycled or recovered. Similarly, the oil/water separation sumps were designed to recover as much product as possible and relatively little would be left to migrate into the soil. On the other hand, the sumps used to collect tank bottom sludges were in use for 20 years or longer during which time the petroleum hydrocarbons could have migrated into the underlying soil.

SCOPE OF INVESTIGATION

The goal of this investigation was to sample as many of the documented sumps (located on the Psomas survey) as possible. The sumps were investigated by locating the center of the sump from the Psomas survey and digging a trench in the center of the sump. If field observations

indicated the presence of crude oil in this trench, two additional trenches were dug at opposite ends of the sump such that the center of the trenches cut across the boundary of the sump as indicated in the Psomas survery. Two soil samples were collected from each trench to confirm the field observations: one from the soil where petroleum hydrocarbons were observed and a second sample from beneath that soil where hydrocarbons were not observed. Soil borings were then drilled at those locations where petroleum hydrocarbons were documented at the bottom of the trench.

Trenches were dug in 26 of the 45 sumps which were plotted on the Psomas survey. Trenches were approximately 15 to 20 feet long and 12 to 15 feet deep. Soil borings to 60 feet deep were drilled in six sumps that were identified as tank bottom sludge collection sumps. Between the current investigations and previous work on this site, over two thirds (31/45) of the sumps documented by aerial photographs and 60 percent (31/52) of the sumps including seven from the Ebasco report were investigated. The remaining sumps were not investigated because of underground utilities or surface obstructions. Other sumps which were shown in the Ebasco report were not investigated because the locations of these Ebasco sumps were not clearly identified or were not supported by field observations.

Two soil samples were collected at discrete depths from each trench and were analyzed for total petroleum hydrocarbons (TPH) using EPA Method 418.1 to confirm field observations made during the trenching operations. In the soil borings, samples were collected at approximately 5-foot intervals. These soil samples were also analyzed for TPH using EPA Method 418.1. Total priority pollutant organics (EPA Methods 8080, 8240 and 8270) were conducted on selected samples collected from sumps where TPH exceeded 1,000 ppm. These samples were collected from discolored sludge material at depths of approximately 10 to 15 feet to determine the presence of priority pollutants in the sludge material and from depths of 40 to 50 feet below ground surface to determine whether priority pollutants have migrated to depth. Figures 2 through 6 show the sump locations in each area on the property.

RESULTS

Field observations and total petroleum hydrocarbon analytical results are summarized in Table 1. Data from the priority pollutant organic analyses are summarized in Table 2. Laboratory data sheets and chain-of-custody forms for trenching operations are presented in Appendix A. Laboratory data sheet and chain-of-custody forms for drilling operations are presented in Appendix B. Soil boring logs are included in Appendix C. Results of laboratory data, field observations, and estimated volumes of soil requiring remediation in each area are discussed in the following section.

TABLE 1
Summary of Total Petroleum Hydrocarbon Concentrations-EPA Method 418.1

AREA	SUMP ID(1)	TRENCH(T) SOIL BORING(SB)	DATE SAMPLED	SAMPLE ID(2)	DEPTH (FT)	TEXTURE(3)	TPH(4) (ppm)	FIELD(5) OBSERVATIONS
AREA 2	A/B	SB-3	1/27/89	23815	7.5-8.0	SLUDGE	36000	
,,,,,,,,,				23816	12.0-12.5	SM	23000	
			i i	23817	15.0-15.5	SM	20	•
				23818	17.5-18.0	SM	1300	•
				23819	20.5-21.0	SM	2500	
		SB-8	3/24/89	24693	25.5-26.0	sw	120	
				24694	30.5-31.0	SW	10	
				24695	35.5-36.0	SM	<5	
				24696	40.5-41.0	SW	<5	
				24697	45.5-46.0	SW	<5	
				24698	50.5-51.0	SW	80	
				24699	55.5-56.0	SW	80	
				24700	60.5-61.0	SW	10	
	С	T1	3/13/89	T1A2CS1	6	a.	270	s
				T1A2CS3	10	SM	480	o,s
		T2	3/13/89	T2A2CS1	6	a.	280	o,s
				T2A2CS3	12	SM	<5	
		ТЗ	3/13/89	T3A2CS1	5.5	a.	130	. O,S
				T3A2CS3	12	SM	610	O,S
	D	Т1	3/16/89	T1A2DS1	5	SM	1000	o,s
				T1A2DS3	13	SM	<5	o,s
	Ε	Т1	3/16/89	T1A2ES1	6	SM	180	o,s
				T1A2ES3	13	SM	<5	
	F	T1 -	3/16/89	T1A2FS1	5	SM	800	o,s
				T1A2FS3	12	SM	50	S
	G	Т1	3/15/89	T1A2GS1	5.5	α	130	o,s
				T1A2GS3	13	SM	<5	

TABLE 1
Summary of Total Petroleum Hydrocarbon Concentrations-EPA Method 418.1 (continued)

AREA	SUMP ID(1)	TRENCH(T) SOIL BORING(SB)	DATE SAMPLED	SAMPLE ID(2)	DEPTH (FT)	TEXTURE(3)	TPH(4) (ppm)	FIELD(5) OBSERVATIONS
AREA 2	· н	T1	3/15/89	T1A2HS1	5.5	a.	520	o,s
MILN E	• • • • • • • • • • • • • • • • • • • •	• •	0, 10.00	T1A2HS3	13	SM	<5	
	1/J	T1	3/13/89	T2A2I/JS1	6	α	200	o,s
				T1A2I/JS3	10	SM	90	o.s
		T2	3/13/89	T2A2I/JS1	6	a.	<5	
				T2A21/JS3	12	SM	<5	
		Т3 -	3/13/89	T3A2I/JS1	6	a.	< 5	
				T3A2I/JS3	12.5	SN	<5 .	
	к	· T1	3/13/89	T1A2KS1	6	a.	120	
				T1A2KS3	12.5	SM	20	
		Т2	3/13/89	T2A2KS7	3	a.	790	o,s
				T2A2KS1	6.5	a.	120	
				T2A2KS5	12	SM	<5	
		Т3	3/13/89	T3A2KS1	6.5	α L	<5	
				T3A2KS3	12	SM	<5	
		T4	3/13/89	T4A2KS1	5.5	a.	110	
				T4A2KS3	1 2	SM	<5	
	L	SB-4	1/27/89	23820	6-6.5	a.	<5	
				23821	10.5-11.0	a.	<5	
				23822	13.5-14.0	SM	<5	
				23823	15.0-15.5	SM	<5	
AREA 3	A	Т1	3/13/89	T1A3AS1	6	a.	210	
				T1A3AS5	11	SM	10	
	•			T1A5AS3	13	SM	340	
	В	•••	•••		•		•••	
	С							

TABLE 1
Summary of Total Petroleum Hydrocarbon Concentrations-EPA Method 418.1 (continued)

AREA	SUMP ID(1)	TRENCH(T) SOIL BORING(SB)	DATE SAMPLED	SAMPLE ID(2)	DEPTH (FT)	TEXTURE(3)	TPH(4) (ppm)	FIELD(5) OBSERVATIONS
REA 3	D		•••			•••		
	E	T1	3/10/89	T1A3ES1	6	SM	4000	o,s
	_			T1A3ES3	8.5	SM	10	S
	·			T1A3ES5	10.5	SM	<5	o,s
		Т2	3/13/89	T2A3ES1	6	SM	<5	
		· · · · · ·		T2A3ES3	12	SM	900	o,s
		Т3	3/13/89	T3A3ES1	6.5	SM	2600	o,s
				T3A3ES3	12.5	SM	<5	o,s
		SB-9	3/23/89	24701	5.5-6.0	SM	300	
				24702	10.5-11.0	SM	20	
				24703	15.5-16.0	SM	<5	
				24704	20.5-21.0	SM	<5	
				24705	25.5-26.0	SM	<5	
				24706	30.5-31.0	SM	<5	
			•	24707	35.5-36.0	SM	<5	
				24708	40.5-41.0	SP	<5	
				24709	50.5-51.0	SP	<5	
			•	24710	60.5-61.0	SP	20	
	F	T1	3/16/89	T1A3FS1	. 5	SM	2700	o,s
				T1A3FS3	13	aL ·	10	
AREA 4	A	T1	3/10/89	T1A4AS1	5.5	SM	8	o.s
				T1A4AS3	9	SM	240	O.S
		Т2	3/10/89	T2A4AS1	6	SM	26	o.s
				T2A4AS3	10	SM	7	O.S
		ТЗ	3/10/89	T3A4AS1	6	SM	8	
				T3A4AS3	10	SM	NA(6)	•
		SB-10	3/24/89	24711	5.5-6.0	SM	NA	
				24712	10.5-11.0	ML	1400	

TABLE 1
Summary of Total Petroleum Hydrocarbon Concentrations-EPA Method 418.1 (continued)

AREA	SUMP ID(1)	TRENCH(T) SOIL BORING(SB)	DATE SAMPLED	SAMPLE ID(2)	DEPTH (FT)	TEXTURE(3)	TPH(4) (ppm)	FIELD(5) OBSERVATIONS
					· · · · · · · · · · · · · · · · · · ·		N. F /	
AREA 4	Α	SB-10	3/24/89	24721	15.5-16.0	a.	<5	
				24722	20.5-21.0	SM	<5	
				24723	25.5-26.0	SP	<5	
				24724	30.5-31.0	SM	<5	
				24725	35.5-36.0	· SM	<5	
				24726	40.5-41.0	SM	<5	
				24727	50.5-51.0	SM	<5	
				24728	60.5-61.0	SW	<5	
	В	•••	- • •	•••	•••	• • •	•••	
	С	T1	3/16/89	T1A4CS1	5	SM	600	0,\$
				T1A4CS3	12	a.	900	0,8
AREA 5A	A	•••	•••	•••		•••	•••	
	В	SB-2	1/27/89	23808	2.5-3.0	a.	<5	
				23809	7.0-7.5	a_	<5	
				23810	8.5-9.0	a.	<5	•
				23811	12.5-13.0	a.	<5	
				23812	17.0-17.5	a.	<5	•
	,			23813	23.5-24.0	SM-SC	<5	
				23814	29.5-30.0	SP-SM	<5	
	С	Т1	3/16/89	T1A5ACS1	5	SM	1200	o,s
				T1A5ACS3	12	SM	250	
	D	T1	3/16/89	T1A5ADS1	7	SM	2800	0
				T1A5ADS3	12.5	SM	60	
	E	T1	3/16/89	T1A5AES1	5.5	SM	20	
				T1A5AES3	13	SM	<5	
	F	•••						·
	G	T1	3/14/89	T1A5AGS1	5.5	α	30	
•				T1A5AGS3	7	SM	11000	o,s
					9			

TABLE 1
Summary of Total Petroleum Hydrocarbon Concentrations-EPA Method 418.1 (continued)

AREA	SUMP ID(1)	TRENCH(T) SOIL BORING(SB)	DATE SAMPLED	SAMPLE ID(2)	DEPTH (FT)	TEXTURE(3)	TPH(4) (ppm)	FIELD(5) OBSERVATIONS
AREA 5A	G	Т1	3/14/89	T1A5AGS5	12	SM	660	o.s
		. Т2	3/15/89	T2A5AGS1	5	SM	230	0
				T2A5AGS3	10	SM	2200	o.s
				T2A5AGS5	12.5	SM	9000	O.S
		ТЗ	3/16/89	T3A5AGS1	5	SM	<5	
				T3A5AGS3	13.5	SM	<5 .	
	н	SB-1	1/27/89	23824	3.5-4.0	α	<5	
				23825	6.5-7.0	a_	<5	
			•	23826	8.0-8.5	a_	<5	•
	÷			23827	12.5-13.0	SM	16	
				23828	15.5-16.0	SP-SM	<5	
	1.7	SB-5	3/22/89	24661	5.5-6.0	sc	<5	•
				24662	10.5-11.0	SM	6400	
				24663	15.5-16.0	SM	10	
				24664	20.5-21.0	a.	<5	
				24665	25.5-26.0	a_	<5	
				24666	30.5-31.0	SM	<5	
				24667	35.5-36.0	SW	<5	
				24668	40.5-41.0	a.	<5	
				24669	50.5-51.0	a_	<5	
				24670	60.5-61.0	SM	<5	
	J		• • •	•••	•••	•••	•••	
	К		• • •	4		• • •	•••	
AREA 5B	A			•••				
	В	T1	3/14/89	T1A5BBS1	5	α	20	
			•	T1A5BBS3	13	SM	40	
		T2	3/14/89	T1A5BBS5	5	a.	400	
				T1A5BB87	14	8M	∢ 5	

TABLE 1
Summary of Total Petroleum Hydrocarbon Concentrations-EPA Method 418.1 (continued)

AREA	SUMP ID(1)	TRENCH(T) SOIL BORING(SB)	DATE SAMPLED	SAMPLE ID(2)	DEPTH (FT)	TEXTURE(3)	TPH(4) (ppm)	FIELD(5) OBSERVATIONS
AREA 5B	C/D	T1	3/14/89	T1A5BC/DS1	5.5	a.	150	
				T1A5BC/DS3	, 13	SM	10	
		Т2	3/14/89	T2A5BC/DS1	5	α	< 5	
		· -		T2A5BC/DS3	13	SM	300	
	ε	T1	3/10/89	T1A5BES1	5	SM	< 5	0,8
	_	. • •		T1A5BES3	12	SM	<5	5,5
		Т2	3/10/89	T2A5BES1	7.5	SM	120	
				T2A5BES3	12	SM	800	
		ТЗ	3/10/89	T3A5BES1	9	SM	300	O.S
•				T3A5BES3	11.5	SM	150	
				T3A5BES5	13	SM	2600	
		SB-7	3/23/89	24681	5.5-6.0	SM	1100	
				24682	10.5-11.0	SM	3500	
				24683	15.5-16.0	SM	1100	
				24684	20.5-21.0	SM	300	
				24685	25.5-26.0	SM	300	
				24686	30.5-31.0	MH	70	
				24687	35.5-36.0	SW	170	
				24688	40.5-41.0	SW	200	
				24689	50.5-51.0	SM	< 5	
	F		. •••	•••	• • •	• • •	•••	
	G		 ,	•••	•••	•••		
	Н				•••		•••	
	1	T1	3/15/89	T1A5BIS1	5.5	SM	7	
		·		T1A5BIS3	11	SM	5000	O.S
				T1A5BIS5	14	SM	3400	O.S
		SB-6	3/22/89	24671	5.5-6.0	sw	<5	

TABLE 1
Summary of Total Petroleum Hydrocarbon Concentrations-EPA Method 418.1 (continued)

AREA	SUMP ID(1)	TRENCH(T) SOIL BORING(SB)	DATE SAMPLED	SAMPLE ID(2)	DEPTH (FT)	TEXTURE(3)	TPH(4) (ppm)	FIELD OBSERVATIONS
AREA 5B	. 1	SB-6	3/22/89	24672	10.5-11.0	α	<5	
				24673	15.5-16.0	SM	<5	
				24674	20.5-21.0	SM	< 5	
				24675	25.5-26.0	SM	< 5	
				24676	30.5-31.0	SM	<5	
				24677	35.5-36.0	SW	<5	
				24678	40.5-41.0	SM	5	
				24679	50.5-51.0	ML	<5	
				24680	60.5-61.0	SM	<5	
	J			•••				
	к	T1	3/16/89	T1A5BKS1	5		150	
				T1A5BKS3	10		<5	•
	L	Т1	3/15/89	T1A5BL81	5.5		140	
				T1A5BLS3	13.5		<5	

- (1) Psomas sump identification
- (2) For trenches: field sample identification. For soil borings-soil label register numbers.
- (3) Unified soil classification

CL=sandy/silty clays;

SM=silty sands;

SP=poorly graded gravelly sands;

SW=well graded gravelly sands;

ML=very fine sands or silts;

SC=clayey sands;

MH=fine sands or silts.

- (4) Total petroleum hydrocarbon concerntration-EPA Method 418.1
- (5) O=odor; S=stain
- (6) NA=not available

TABLE 2: SUMMARY OF PRIORITY POLLUTANT ANALYSES

AREA	Sump	Soil Boring	Sample Depth (ft)	EPA Method 8080 Chlorinated Pesticides/PCB's (ppm)	EPA Method 8240 Volatile Organics (ppm)	EPA Method 8270 Semi-Volatile Organics (ppm)	
AREA 2	В	SB-3	7.5- 8.0	None detected	Benzene 0. Ethyl benzene 6.	•	310
			20.5-21.0	None detected	None detected	2-Methyl- naphthalene	5.7
	В	SB-8	40.5-41.0	None detected	None detected	None detected	
AREA 3	E	SB-9	15.5-16.0	None detected	None detected	None detected	
AREA 5A	I	SB-5	10.5-11.0	None detected	None detected	2-Methyl- naphthalene	5.7
			50.0-51.0	None detected	None detected	None detected	
AREA 5B	E	SB-7	15.5-16.0	None detected	None detected	2-Methyl- naphthalene	9.7
			·			Fluorene	0.94
		i e	40.5-41.0	None detected	None detected	2-Methyl- naphthalene	1.6
						s. 6 J. 9	

DISCUSSION OF RESULTS

The results of this investigation and previous investigations are discussed below for each area. The rationale for the volume estimates of soil requiring remediation are also discussed below. The estimated volumes from all sumps are summarized in Table 3 at the end of this section.

AREA 2:

Area 2 comprises approximately 17 acres located northeast of the intersection of Bloomfield Avenue and Emmens Way. Twelve sumps (A through L) were identified from aerial photographs. Ten Sumps (B through K) were investigated by at least one trench and two Sumps (A/B and L) were investigated with soil borings.

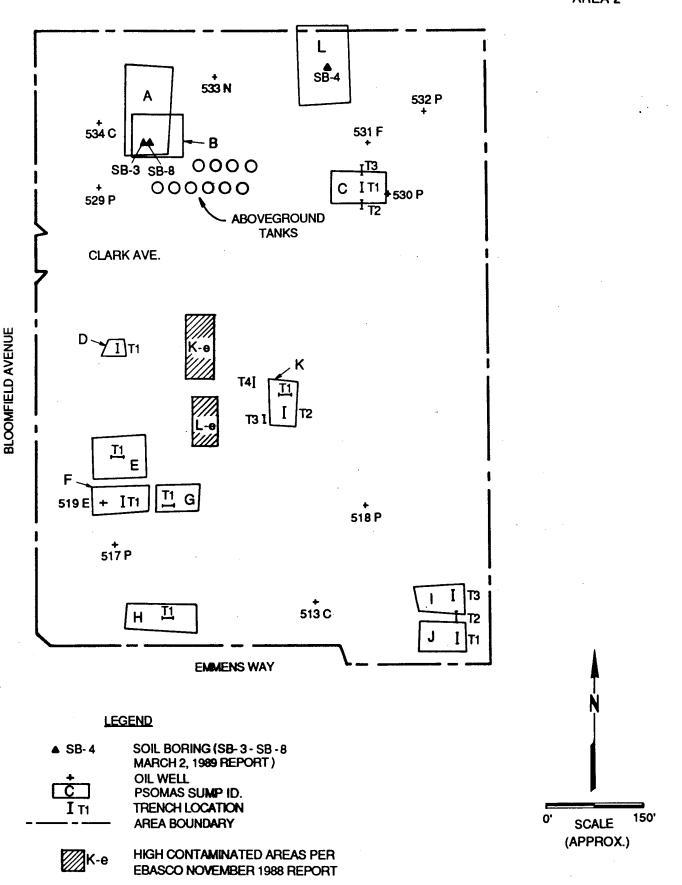
Based on a review of the aerial photographs, it appeared that only Sump B was related to aboveground tanks and was probably used to collect tank bottom sludges. Two sumps (I/J) appeared to be a "double sump" and were probably used as oil/water separation sumps. Other sumps from the aerial photographs appeared to be associated with oil wells and were probably used as oil development sumps.

High concentrations of TPH were found in Sump B and a sludge material was observed to a depth of approximately 11 feet below grade. Concentrations of TPH in the sludge were 36,000 ppm and 23,000 ppm in the fine sand immediately beneath the sludge. Concentrations exceeded 1,000 ppm in this material which graded to a coarse sand to a depth of 23 feet. Concentrations of TPH dropped near or below 100 ppm between 23 feet and 61 feet in a coarse sand and gravel layer. Soil colors below 23 feet graded from pale olive to greenish gray, suggesting anaerobic conditions. A cross-section showing the extent of soil containing crude oil in Sump B is presented in Appendix D Figure 1.

Sumps C, D, F, H, J, and K had TPH concentrations between 200 and 1,000 ppm in the upper 5 to 13 feet. With the exception of Sump C, concentrations dropped to below 100 ppm at the 12-foot depth. Ebasco Sumps K and L (K-e and L-e) were reported to contain TPH concentrations of 4,200 ppm and 13,000 ppm at depths of 11 feet.

Volume estimates were made on the basis of these data as shown in Table 3. The areas corresponded to the area of the sump and the depth corresponded to the depth where concentrations dropped below 200 ppm. In Sump C and Ebasco Sumps K and L, the depths at which concentrations would drop to 200 ppm were assumed to be at 20 feet.

The presence of sumps in the area between Sumps D and K is not supported by evidence from aerial photography. One possible explanation for the crude oil in this area is discharge of tank bottom sludge from the tanks which were formerly located immediately north of this area. This area is approximately 1 foot lower than the surrounding area and may have accumulated oil spilled from surrounding sources. A 1963 photograph clearly shows a surface leak accumulating in this area.





AREA 3:

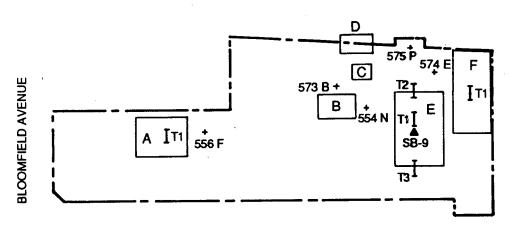
Area 3 comprises approximately 3 acres located southeast of the intersection of Bloomfield Avenue and Telegraph Road. Six sumps (A through F) were identified by Psomas. Sumps A, E and F were investigated by at least one trench and Sump E was also investigated with one soil boring.

Ebasco identified one sump ("Sump N") at the north central part of Area 3. Ebasco's "Sump N" included Sump B. Ebasco's data showed soil with TPH concentrations of 24,531 ppm and 8,255 ppm in samples collected at 6 and 5 feet below ground surface within the perimeter of Sump B. Sumps B, C and D were not investigated at this time because of underground utilities. However, because of Ebasco findings of elevated TPH concentrations in Sump B and because aerial photographs indicated that Sumps B, C, and D, were all well development sumps, it was assumed that surface soils from Sumps C and D are similar to Sump B and will all require remediation.

Sumps A, E, and F were investigated and TPH concentrations above 1,000 ppm were detected in the upper 6 feet near the centers of Sumps E and F. Sump A had concentrations above 200 ppm at 9 feet. Based on the aerial photograph review, Sump A was considered to be a well development sump because it is adjacent to an oil well and because it was observed only on the 1928 photo. Sumps E and F were observed in the 1945 photo and may have been used for a purpose other than mud pits during well construction. However, no tanks are nearby to indicate that they were tank bottom sludge sumps. Cross sections showing the extent of soil containing crude oil in Sumps E and F are presented in Appendix D Figures 2 and 3.

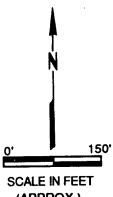
Volume estimates were made on the basis of these data as shown in Table 3. It is assumed that the depth in which TPH concentrations drops to 200 ppm in Sump B, C, and D is 20 feet.

TELEGRAPH ROAD



LEGEND

SB - 9 A **SOIL BORING** OIL WELL PSOMAS SUMP ID. TRENCH LOCATION **AREAS BOUNDARY**



(APPROX.)



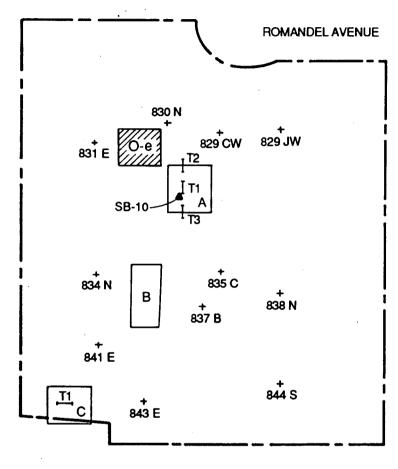
AREA 4:

Area 4 comprises approximately 9 acres located north of Telegraph Avenue and east of the railroad tracks. Three sumps (A, B, and C) were identified from aerial photographs. Sumps A and C were investigated with at least one trench and Sump A was also investigated with one soil boring. Sump B was not investigated because underground utilities and a wooden fence prevented trenching at the site.

Sump A is the only sump in Area 4 that was observed on aerial photographs after 1928. No tanks were observed on any aerial photographs adjacent to Sump A which would indicate that this was used as a tank bottom sludge sump. Data from this investigation showed, 1,400 ppm TPH at 11 feet and none detected from 16 feet to 61 feet. A cross-section showing the extent of soil with crude oil in Sump A is presented in Appendix D Figure 4. Ebasco identified "Sump O" with approximately similar dimensions immediately northwest of Sump A. Ebasco's data showed TPH concentrations over 15,000 ppm at 3 feet and field observations of discolored soil and petroleum odors in other trenches in the area. It is likely that "Sump O" and Sump A are the same. However, Ebasco's data cannot be ignored at this time and a separate volume calculation was made for "Sump O".

Sumps B and C were observed only on the 1928 photo and were adjacent to oil wells and are therefore assumed to be well development sumps. Since Sump B could not be investigated, it was assumed that the TPH concentrations are similar to Sump C. Sump C had a TPH concentration of 900 ppm at 12 feet. The maximum depth of soil requiring remediation is assumed to be 15 feet in both sumps.

Volume estimates were based on the above assumption and the data is shown in Table 3.



TELEGRAPH ROAD

LEGEND

SB-10 SOIL BORING

+ OIL WELL

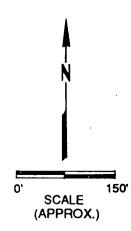
PSOMAS SUMP ID.

T1 TRENCH LOCATION

AREAS BOUNDARY

HIGH CONTAMINATED AREAS PER

EBASCO NOVEMBER 1988 REPORT





AREA 5A:

Area 5A compromises approximately 25 acres located north of Florence Avenue, east of Shoemaker and south of the rail spur. Eleven sumps (A through K) were identified from aerial photographs by Psomas. Sumps C, D, E, and G, were investigated with at least one trench. Sumps B, H, and I were each investigated with one soil boring. Sumps J and K were not investigated because buildings were present.

Based on review of aerial photographs, it appeared that Sump I and probably Sump J, were used to collect tank bottom sludges. Total petroleum concentrations of 6,400 ppm were encountered in Sump I in a sandy layer at a depth of 11 feet and dropped down to "not detected" (<5ppm) at a depth below 20 feet. A cross-section showing the extent of soil containing crude oil in Sump I is presented in Appendix D Figure 5. It is assumed that soil which may require remediation in Sumps I and J extents to a depth of 15 feet.

The 9,000 ppm concentration of TPH encountered at a depth of 12.5 feet in Sump G is related to an active leak in an underground oil pipe. The depth of soil with TPH concentrations greater than 200 ppm in Sump G is estimated at 20 feet.

Soil investigations in Sump C showed TPH concentrations of 1,200 ppm and 200 ppm at depths of 5 and 12 feet, respectively. It is assumed that the depth of which requires remediation in Sump C is 15 feet.

Sumps D and F were adjacent to the drainage ditch and may have been used as oil/water separation sumps. Soil investigations in Sump D showed TPH concentrations of 2,800 ppm and 60 ppm at depths of 7 and 12.5 feet respectively. Depth of soil containing crude oil with TPH concentrations greater than 200 ppm is assumed 10 feet in Sumps D and F.

Sump B showed on aerial photographs up to 1953. The sump appeared to be a double sump which may have been used as an oil/water separation sump. Although soil analysis from the one auger hole drilled near the center of the southern part of Sump B did not show any TPH concentrations greater than 200 ppm there may be some soil in Sump B that may require remediation. It is assumed that the depth to which soil in Sump B may requie remediation is 10 feet.

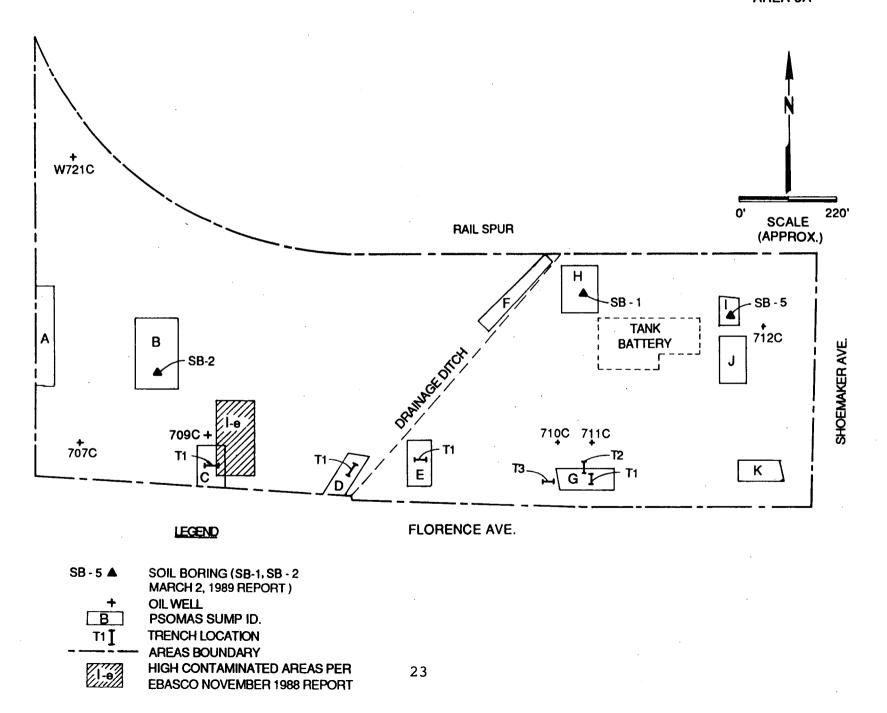
No soil investigations were conducted at Sump A. The 1928 aerial photograph shows that Sump A may have been associated with oil production activities from two oil wells to the north and three oil wells to the south of the sump. Thus, it is assumed that soils which may have TPH concentrations greater than 200 ppm in Sump A may extent to a depth of 10 feet.

No investigations were conducted at Sump K shows on aerial photographs up to 1947. Because no tanks were observed near Sump K and because sump was adjacent to an oil well, it is assumed that soils to a depth of 5 feet in Sump K may require remediation.

Ebasco identified one sump "Sump I", at the south west side of Area 5A, to have soil with TPH concentrations of 1,900 ppm at 12 feet. It is likely that "Sump I" and Sump C are the same. However, Ebasco's data cannot be ignored and volume calculations were made for "Sump I". The maximum depth of soil that require remediation is assumed at 20 feet in "Sump I".

Volume estimates were made on the of the above assumptions and the data as shown in Table 3.

FIGURE 5 SOIL INVESTIGATION IN AREA 5A



AREA 5B:

Area 5B comprises approximately 28 acres located west of Shoemaker and north of the Rail Spur. Thirteen sumps (A through M) were identified from aerial photographs by Psomas Sumps B, C, D, E, I, K and L were investigated by at least one trench and Sumps E and I were each investigated with one soil boring.

Concentration of 3,500 ppm were detected at a depth of 11 feet in Sump E. Concentrations of TPH in Sump E decreased with depth to 70 ppm at 31 feet. A cross-section showing the extent of soil containing crude oil in Sump E is presented in Appendix D, Figure 6. The aerial photo review showed that Sumps E, F and G are associated with the gas plant, but only Sumps E and F showed on aerials beyond 1945. It is assumed that the depth of soil requiring remediation is 30 feet in Sumps E and F and 15 feet in Sump G.

Analysis of soil samples from a trench dug near the center of Sump I showed TPH concentrations of 3,400 ppm at 14 feet. The aerial photo review also showed that Sumps I and J appeared to be a double sump which may have been used as an oil/water separation sump. The depth of soil requiring remediation in Sumps I and J is estimated at 15 feet. A cross-section showing the extent of soil with crude oil in Sump I is presented in Appendix D Figure 7.

Sumps C and D appeared in aerial photographs to be a double sump. Analysis of soil samples showed TPH concentrations greater than 300 ppm at 13 feet in Sump D, and 150 ppm at 5.5 feet in Sump C. It is estimated that the depths of soil requiring remediation in Sumps C and D are 5 and 15 feet, respectively.

Sumps L and M in Area 5B also appear to be a double sump which may have been used as an oil/water separation sump. Since field investigations showed that TPH concentrations in Sump L were less than 200 ppm, it is assumed that the same is applicable to Sump M.

Sump A was not investigated because underground utilities prevented trenching in that area. However, the 1928 aerial photographs showed that Sump A is located next to an oil well and was probably an oil well development sump. It is estimated that the depth of soil that may require remediation in Sump A is 5 feet.

Ebasco defined three sumps, "Sump D", "Sump E1", and "Sump F" southeast of Area 5B near Shoemaker with TPH concentrations greater than 200 ppm. Ebasco's "Sump F" had a concentration of 3,000 ppm at a depth of 10 feet and "Sumps D" and "E1" had TPH concentrations of 530 and 210 ppm at depths of 10 and 11 feet, respectively. The presence of these sumps is not supported by evidence from aerial photographs. However, these areas may have received petroleum discharge from oil operation activities in the area. Total depth of soil with TPH concentrations greater than 200 ppm in Ebasco Sumps "D", "E1" and "F" is estimated at 15, 15 and 20 feet respectively.

Volume estimates were made on the basis of the above assumptions and the data is shown in Table $\bf 3$.

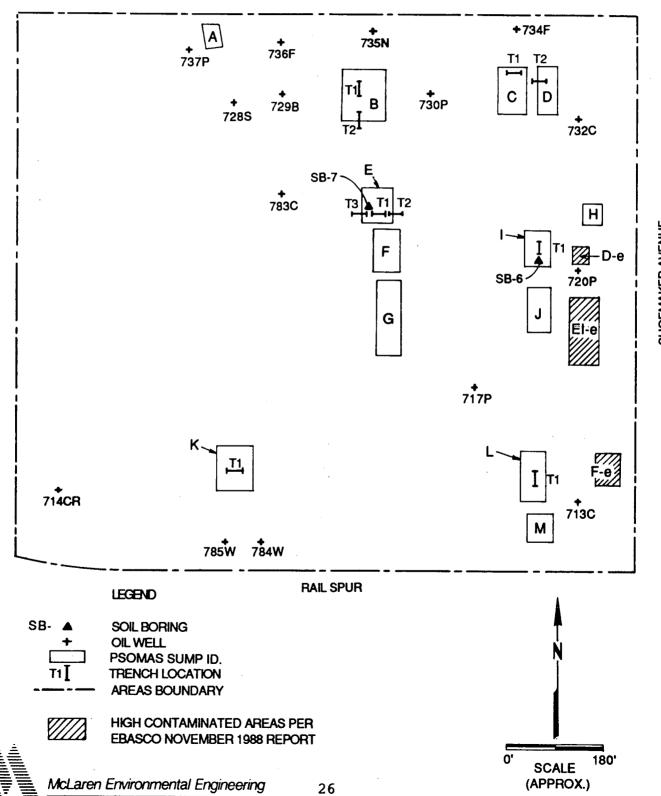




TABLE 3: ESTIMATED VOLUMES OF CRUDE OIL AFFECTED SOILS IN EACH SUMP (FLUFF FACTOR 1.2)

Volume of Soils Requiring Remediation (TPH >200 ppm)(3)

AREA	SUMP ⁽¹⁾ ID	EBASCO(2) AREA ID	SUMP DIMENSIONS (feet)	Depth (feet)	Excavated ⁽⁴⁾ Volume (cubic yards)
AREA 2) A/B	<u> </u>	140 x 90	25	14,000
	C		90 x 50	20	4,000
	D		30 x 30	10	400
	Ē		90 x 65	••	
	F		90 x 45	5	900
	G		70 x 42	•	
	Н		125 x 38	5	1,050
	Ī		80 x 50	••	
	J ,		70 x 50	10	1,550
	K		75 x 45	15	1,550
	L		125 x 80	••	
	_	K	105 x 54	20	5,000
		L	105 x 45	20	4,200
				Subtotal Area 2	31,100
AREA 3	A		90 x 60	15	3,600
	В		60 x 35	20	1,900
	C		35 x 25	20	770
	D		50 x 30	20	1,330
	E		120 x 80	15	6,400
	F		135 x 80	10	4,800
				Subtotal Area 3	18,800
AREA 4	. A		70 x 75	15	3,500
	В		100 x 50	15	3,330
	C		75 x 75	15	3,750
	J	0	90 x 81	20	6,500
				Subtotal Area 4	17,080

⁽¹⁾ Psomas Sump ID

⁽²⁾ Ebasco November, 1988 report.

⁽³⁾ Total Petroleum Hydrocarbon Concentration - EPA Method 418.1

⁽⁴⁾ Excavated volume accounts for a fluff factor of 1.2

TABLE 3: ESTIMATED VOLUMES OF CRUDE OIL AFFECTED SOILS IN EACH SUMP (FLUFF FACTOR 1.2) (Continued)

Volume of Soils Requiring Remediation (TPH >200 ppm)(3)

AREA	SUMP ⁽¹⁾ ID	EBASCO(2) AREA ID	SUMP DIMENSIONS (feet)	Depth (feet)	Excavated ⁽⁴⁾ Volume (cubic yards)
AREA S	5A A		220 x 40	10	3,910
	В		150 x 95	10	6,330
	С		50 x 45	15	1,125
	D		110 x 50	10	2,440
	E		100 x 60	• •	
	F		210×30	10	2,800
	G		130×50	20	5,770
	H		105×85		
	I		70 x 40	15	1,870
	J		105×60	15	4,200
	K		100 x 45	. 5	1,000
		I	140 x 65	20	8,100
				Subtotal Area	$\overline{37,545}$
REA S	B A		35 x 25	5	200
	В		100 x 90	5	2,000
	С		100 x 60	5	1,200
	D.		90 x 50	15	3,000
	E		70 x 60	[.] 30	5,620
	F		100×45	30	6,000
	G		150×50	15	5,000
	Н		40 x 40	, - -	
	Ţ		75 x 40	15	2,000
	J		90 x 40	15	2,400
	K		90 x 80	* *	
	L		90 x 50		• • •
	M		55 x 50		
		D	60 x 48	15	1,920
		E1	150×90	15	9,000
		F	60 x 50	20	2,700
				Subtotal Area	5B 41,040
				TOTAL	145,525

⁽¹⁾ Psomas Sump ID

⁽²⁾ Ebasco November 1988 report

⁽³⁾ Total Petroleum Hydrocarbon Concentration - EPA Method 418.1

⁽⁴⁾ Excavated volume accounts for a fluff factor of 1.2

PRIORITY POLLUTANT ANALYSIS

Two soil samples from each Soil Borings SB-3/SB-8 (Area 2, Sump B), SB-9 (Area 3, Sump E), SB-5 (Area 5A, Sump I) and SB-7 (Area 5B, Sump E) were analyzed for priority pollutant compounds using EPA Methods 8080, 8280 and Samples from each soil boring were collected from intervals that showed most visible discoloration (10-15 feet), and from depths that ranged between 40 and 50 feet below ground surface (BGS). Volatile and semi-volatile organics were detected at a depth of 7.5 to 8.0 feet BGS in Soil Boring SB-3. The detected chemicals in the sample are typical of crude oil and its breakdown products including xylene, napthalene, 2-Fluorene methylnaphthalene, and phenathrene. fluorene methylnaphthalene were detected in soil samples collected at 15.5 feet BGS from Soil Boring SB-7 (Area 5B, Sump E). Only 2-methylnaphthalene was detected at a depth of 41 feet in Soil Boring SB-7. No other chemicals were detected in any of the soil samples analyzed for priority pollutant organics.

Priority pollutant metals in soil samples collected at a depth of 8 feet BGS from Soil Boring SB-3 were below the total threshold limit concentrations (TTLC) values as described in Title 22. Except for barium, copper and lead, all priority pollutant metals had concentrations below the soluble threshold limit concentrations (STLC) values. A waste extraction test (WET) conducted on barium, copper, and lead showed that the three metals were below the STLL values.

These data from the priority pollutant analyses indicate that priority pollutants are not present on the property at significant levels and that petroleum hydrocarbons are the only chemicals of concern this, at site.

MICROBIAL SCREENING

Laboratory screening was performed on soil samples from four soil borings to enumerate viable microbial populations at various depths in what appeared to be Tank Bottom Sludge Sumps. These populations were compared with microbial populations in soil from a control location to assess the effect of past oilfield practices on soil microorganisms. Differences in populations between control and sump locations were attributed to the oil field practices because the soil and climatic variables were similar for all locations.

The results of the laboratory screening (Table 5) indicated considerable differences in microbial populations with depth at Soil Borings SB-5, SB-7, SB-8, SB-9 compared to Control Boring SB-11. The influence hydrocarbon on microbiological populations with depth is shown on Figure 7.

TABLE 4: MICROBIAL POPULATION IN SOIL FROM 10 TO 40 FEET

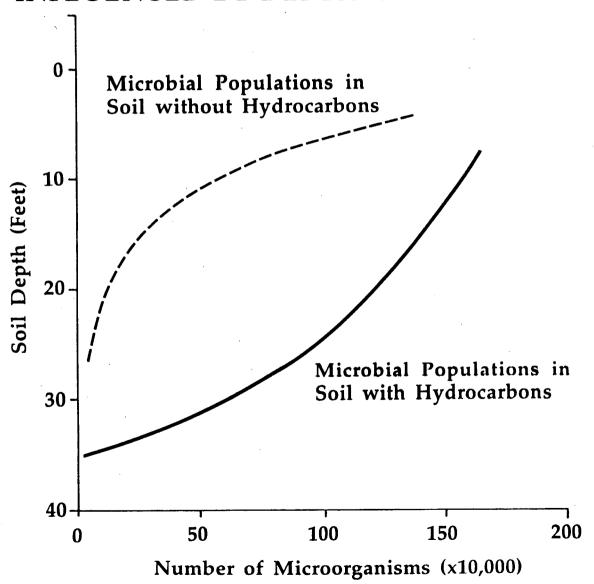
Depth (feet) Locations

	SB-5	SB-	7	SB-8	SB-9	SB-11
	Area 5A Sump I	Area Sump		Area 2 Sump E	Area 3	Control
					<u>-</u>	
10	2.9 ^a	4.4	5.0	4.2	5.4	2.7
20	4.2	3.7	6.2	5.4	5.0	2.0
30	2.3	6.3	3.4	3.3	4.9	2.9
40	4.5	5.3	3.6	3.2	3.7	3.1
	•					

a - Mean of four replications, log numbers of viable microorganisms per gram of soil (e. $2.9 - 10^{2.9}$ or 794 colony forming units)

FIGURE 7

SOIL MICROBIAL POPULATIONS AS INFLUENCED BY DEPTH AND HYDROCARBONS



SUMMARY AND CONCLUSIONS

Available data and our best judgment were used to estimate the volume of soil containing crude oil in the sumps at the proposed McGranahan, Carlson and Company Commerce Center II in the city of Santa Fe Springs, California. Based on the available data we have estimated that the volume of soil which will require remediation is approximately 121,000 cubic yards (in place), or 146,000 cubic yards (excavated). This estimate does not include soil which may require remediation as a result of underground pipeline leaks or random discharge of crude oil not associated with visible surface features. We have included a contingency of 25 percent to account for this additional soil bringing the total estimated volume of soil requiring remediation to 152,000 cubic yards (in place) or 182,000 cubic yards (excavated). A summary of estimated volumes in each area is presented in Table 3.

TABLE 5: SUMMARY OF ESTIMATED VOLUMES (IN CUBIC YARDS) OF SOIL THAT REQUIRE REMEDIATION AT THE McGRANAHAN, CARLSON COMMERCE CENTER II.

Estimated Volumes (cubic yards)

Estimated Volumes with 25% contingency (cubic yards)

AREA	In place	Excavated(1)	In place	Excavated (1)	
AREA 2	25,920	31,100	32,400	38,875	
AREA 3	15,670	18,800	19,590	23,500	
AREA 4	14,230	17,080	17,800	21,350	
AREA 5A	31,290	37,545	39,110	46,930	
AREA 5B	34,200	41,040	42,750	51,300	
TOTALS	121,310	145,565	151,650	181,955	

⁽¹⁾ Excavated volume accounts for a fluff factor of 1.2.

APPENDIX A

LABORATORY DATA SHEETS AND CHAIN-OF-CUSTODY FORMS TRENCHING

Project: <u>McGranahan 4.0</u>

Lab ID: 22540

Sample

Location: A2C T1S1

Date Collected: 03/13/89

Sample

Number: <u>12974</u>

Date

Analyzed: <u>04/12/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

270.

30.

Comments: 1:6 dilution used in analysis.

Analyst:

Ramezanzadeh

Reviewed By:

·

Date: 04/13/89

Laboratory Director:

A N Dow

Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: 22541

Sample

Location: A2C T1S3

Date

Collected: 03/13/89

Sample

Number: **12976** Date

Analyzed: <u>04/12/89</u>

Analyte Concentration ug/g (mqq)

Detection Limit ug/g

Soil

Total Concentration: Standard Oil and Grease Reference

480.

50.

(mqq)

Comments: 1:10 dilution used in analysis.

Analyst:

ezanzadeh

Reviewed By

-Date: 04/13/89

Laboratory Director:

Project: McGranahan 4.0

Lab ID: <u>22542</u>

Sample

Location: A2C T2S1

Date Collected: 03/13/89

Sample

Number: <u>12978</u>

Date

Analyzed: _04/12/89

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

280.

20.

Comments: 1:5 dilution used in analysis.

Analyst: Reviewed By F. Rangzanzadeh J. M. Hoch

Laboratory Director:

J. M. Bartel

Project: McGranahan 4.0

Lab ID: <u>22543</u>

Sample

Location: A2C T2S3

Date Collected: 03/13/89

Sample

Number: <u>12980</u>

Date

Analyzed: <u>04/12/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)	
Total Concentration: Standard Oil and Grease Reference	< 5	5	

Comments:

Analyst: Kanadan F. Ramezanzadeh

Reviewed By:
J. M. Hook

_Date: 04/13/89

Laboratory Director:

M. Barte/

Project: McGranahan 4.0

Lab ID: 22544

Sample

Location: A2C T3S1

Date

Collected: 03/13/89

Sample

Number: 12982

Date

Analyzed: <u>04/12/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

130.

30.

Comments: 1:6 dilution used in analysis.

Analyst: F. Ramezanzadeh

Reviewed By: J. M. Hock

Date: 04/13/89

Laboratory Director:

T M Bartolt

Project: McGranahan 4.0

Lab ID: _22545

Sample

Location: A2C T3S2

Date Collected: 03/13/89

Sample

Number: <u>12984</u>

Date

Analyzed: <u>04/12/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

610.

50.

Comments: 1:10 dilution used in analysis.

Analyst: F. Parle 2002 and

Reviewed By

Date: 04/13/89

Laboratory Director:

T M Bartal

Project: <u>McGranahan 4.0</u>

Lab ID: 22744

Sample

Location: 2D T1S1

Date

Collected: 03/16/89

Sample

Number: <u>10777</u>

Date

Analyzed: <u>04/11/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

1000.

150.

Comments: 1:30 dilution used in analysis.

F. Ramezanzadeh

Reviewed By

T M Hock

Date: 04/12/89

Laboratory Director:

····/

Bartal

Project: McGranahan 4.0

Lab ID: <u>22735</u>

Sample

Location: 2D T1S3

Date

Collected: 03/16/89

Sample

Number: <u>10779</u>

Date

Analyzed: <u>04/11/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: Reviewed By J. M. Hooh Date: 04/12/89

Laboratory Director:

J. N. Bartell

Project: McGranahan 4.0

Lab ID: _22649

Sample

Location: 2E T1S1

Collected: 03/15/89

Sample

Soil

Number: <u>12932</u>

Date

Date

Analyzed: <u>03/31/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

180.

20.

Comments: 1:4 dilution used in analysis.

Analyst: The Reviewed By: Date: 04/03/89

F. Ramezanzadeh

Laboratory Director: J. M. Bartell

Project: McGranahan 4.0

Lab ID: <u>22650</u>

Sample

Location: 2E T1S3

Date Collected: 03/15/89

Sample

Number: <u>12934</u>

Date

Analyzed: <u>03/31/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst: Reviewed By: Date: 04/03/89

F. Rameranzadeh

Laboratory Director:

J. M. Bartell

Project: McGranahan 4.0

Lab ID: <u>22736</u>

Sample

Location: 2F T1S1

Date.

Collected: 03/16/89

Sample

Number: <u>10781</u>

Date

Analyzed: <u>04/11/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

800.

130.

Comments: 1:25 dilution used in analysis.

Analyst: Kanezanzadeh

Reviewed By

Date: <u>04/12/89</u>

Laboratory Director:

TO WY OW

Project: McGranahan 4.0

Lab ID:

22737

Sample

Location: 2F T1S3

Date

Collected: 03/16/89

Sample

Number: 10783

Date

Analyzed: <u>04/11/89</u>

Analyte Concentration

Detection Limit

Concentration ug/g

ug/g
(ppm)

Soil (ppm)

- -

Total Concentration: Standard Oil and Grease Reference

50.

10.

Comments: 1:2 dilution used in analysis.

Analyst:

F. Ramezanzadeh

Reviewed By

 \rightarrow

J. M. Hock

Date: 04/12/89

Laboratory Director:

M Bartol

Project: McGranahan 4.0

Lab ID: 22647

Sample

Location: 2G T1S1

Date

Collected: 03/15/89

Sample

Number: <u>12928</u>

Date

Analyzed: <u>03/31/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

130.

10.

Comments: 1:2 dilution used in analysis.

Analyst F. Ranezanzadeh

Reviewed By

7. M. Hoch

Date: <u>04/03/89</u>

Laboratory Director:

T M Bartal

Project: McGranahan 4.0

Lab ID: 22648

Sample

Location: 2G T1S3

Date

Collected: 03/15/89

Sample

Soil

Number: 12930 Date

Analyzed: _03/31/89

Analyte Detection Concentration Limit ug/g ug/g (mqq) (mqq)

Total Concentration: Standard Oil and Grease Reference

< 5

5.

Comments:

Ramezanzadeh

Reviewed By

Date: 04/03/89

Laboratory Director:

J. M. Bartell



Project: McGranahan 4.0

Lab ID: 22651

Sample

Location: 2H T1S1

Date

Collected: 03/15/89

Sample

Number: <u>12936</u>

Date

Analyzed: <u>03/31/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

520.

50.

Comments: 1:10 dilution used in analysis.

Analyst:

adeh

Reviewed By:

Date: 04/03/89

Laboratory Director:

J. M. Bartell

Project: McGranahan 4.0

Lab ID: 22652

Sample

Location: 2H T1S3

Date

Collected: 03/15/89

Sample

Number: 12938 Date

Analyzed: <u>03/31/89</u>

Analyte Detection Concentration Limit ug/g ug/g (mqq) (mqq)

Soil

Total Concentration: Standard Oil and Grease Reference

< 5

5.

Comments:

zadeh

Reviewed By

(Date: 04/03/89

Laboratory Director:

Project: <u>McGranahan 4.0</u>

Lab ID: 22534

Sample ·

Location: A2I/J T1S1

Date

Collected: 03/13/89

Sample

Number: <u>12962</u>

Date

Analyzed: <u>04/12/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

200.

30.

Comments: 1:6 dilution used in analysis.

Analyst: Kanapalli F. Ramezanzadeh

__Reviewed By

T M Hock

Date: 04/13/89

. . .

Laboratory Director:

Raz fol 1

Project: <u>McGranahan 4.0</u>

Lab ID: _22535

Sample

Location: A2I/J T1S3

Date Collected: 03/13/89

Sample

Number: <u>12964</u>

Date

Analyzed: <u>04/12/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

90.

10.

Comments: 1:3 dilution used in analysis.

Analyst:

_Reviewed By

H. Hogh

Date: 04/13/89

Laboratory Director:

J. M. Bartell

<u>McLaren</u>

zanzadeh

Project: McGranahan 4.0

Lab ID: 22536

Sample

Location: A2I/J T2S1

Date Collected: 03/13/89

Sample

Soil

Number: 12966

Date

Analyzed: <u>04/12/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Laboratory Director:

J. N. Bartel

Project: McGranahan 4.0

Lab ID: _22537

Sample

Location: A2I/J T2S3

Date

Collected: 03/13/89

Sample

Number: <u>12968</u>

Date

Analyzed: <u>04/12/89</u>

Soil	Analyte Concentration ug/g	Detection Limit ug/g
	(mqq)	(mqq)
Total Concentration:		

Total Concentration: Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst: ______Reviewed By: ________Date: 04/13/89
F. Ramezanzadeh J. M. Hogh

Laboratory Director:

J. M. Bartel

Project: McGranahan 4.0

Lab ID: _22538

Sample

Location: A2I/J T3S1

Date

Collected: 03/13/89

Sample

Number: <u>12970</u>

Date

Analyzed: 04/12/89

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

Total Concentration:
Standard Oil and Grease Reference < 5 5.

Comments:

Analyst: The Reviewed By J. M. Hogh Date: 04/13/89

Laboratory Director:

J. M. Bartel

Project: McGranahan 4.0

Lab ID: _22539

Sample

Location: A2I/J T3S3

Date

Collected: 03/13/89

Sample

Number: 12972 Date

Analyzed: 04/12/89

5.

Analyte Detection · Concentration Limit ug/g ug/g Soil (maga) (mqq) Total Concentration: Standard Oil and Grease Reference < 5

Comments:

Reviewed By CDate: 04/13/89 Laboratory Director:

Project: McGranahan 4.0

Lab ID: 22529

Sample

Location: A2K T1S1

Date

Collected: <u>03/13/89</u>

Sample

Number: 24850 Date

Analyzed: _04/12/89

Analyte Detection Concentration Limit ug/g ug/g (mag) (mqq)

Soil

Total Concentration: Standard Oil and Grease Reference

120.

20.

Comments: 1:5 dilution used in analysis.

Analyst:

Reviewed By nzadeh

Date: 03/30/89

Laboratory Director:

Project: McGranahan 4.0

Lab ID: <u>22530</u>

Sample

Location: A2K T1S3

Date Collected: 03/13/89

Sample

Number: <u>12952</u>

Date

Analyzed: <u>04/12/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
Soil (ppm) (ppm)
Total Concentration:

Total Concentration:
Standard Oil and Grease Reference

20.

5.

Comments:

Analyst: Reviewed By Date: 04/13/89

F. Ramezanzadeh

J. M. Hock

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 22531

Sample

Location: A2K T2S1

Date

Collected: 03/13/89

Sample

Number: <u>12954</u>

Date

Analyzed: <u>04/12/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
Soil (ppm) (ppm)

Total Concentration: Standard Oil and Grease Reference

120.

20.

Comments:

Analyst: Reviewed By: Date: 04/13/89
F. Ramezanzadeh

Laboratory Director:

J. M. Bartel

Project: McGranahan 4.0

Lab ID: _22532

Sample

Date

Location: A2K T2S5

Collected: 03/13/89

Sample

Date

Number: <u>12958</u>

Analyzed: <u>04/12/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst: SK

Reviewed By

T M HOCK

CDate: 04/13/89

mezanzadeh

Laboratory Director:

J. M. Bartell

Project: McGranahan 4.0

Lab ID: <u>22533</u>

Sample

Date

Location: A2K T2S7

Collected: 03/13/89

Sample

Date

Number: <u>12960</u>

Analyzed: 04/12/89

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

790.

100.

Comments: 1:20 dilution used in analysis.

Analyst:_

_Reviewed By

Date: 04/13/89

F. Ramezanzadeh

Laboratory Director:

(Bartel)

Project: <u>McGranahan 4.0</u>

Lab ID: <u>22579</u>

Sample

Location: 2-K T3S1

Date Collected: 03/14/89

Sample

Number: 12914

Date

Analyzed: <u>04/10/89</u>

Soil	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	· < 5	5.

Comments:

Analyst: F. Ranezanzadeh

_Reviewed B

J. M. Hoch

Date:<u>04/11/89</u>

Laboratory Director:

. N. Bartell

McLarei

Project: McGranahan 4.0

Lab ID: <u>22533</u>

Sample

Location: A2K T2S7

Date

Collected: 03/13/89

Sample

Number: 12960

Date

Analyzed: <u>04/12/89</u>

Analyte Concentration ug/g

(mada)

Detection Limit ug/g

Soil

Total Concentration: Standard Oil and Grease Reference

790.

100.

(maga)

Comments: 1:20 dilution used in analysis.

Analyst:

MREViewed By

J. M. Hogh

Date: 04/13/89

Laboratory Director:

M. Bartell

Project: McGranahan 4.0

Lab ID: 22579

Sample Location: 2-K T3S1

Date

Collected: <u>03/14/89</u>

Sample

Number: 12914

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 22580

Sample

Date Location: 2-K T3S3

Collected: 03/14/89

Sample

Number: 12916

Date

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (mad) (madd) Total Concentration:

Standard Oil and Grease Reference

< 5 5.

Comments:

F. Ramezanzadeh

Teral Reviewed By

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 22582

Sample

Date

Location: 2-K T4S3

Collected: <u>03/14/89</u>

Sample

Number: <u>12920</u>

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By

Project: McGranahan 4.0

Lab ID:

22546

Sample

Location: A3A T1S1

Date

Collected: 03/13/89

Sample

Number: <u>12986</u>

Date

Analyzed: <u>04/12/89</u>

Analyte Detection Concentration Limit

Soil ug/g ug/g (ppm) (ppm)

Total Concentration:
Standard Oil and Grease Reference 210. 20.

Comments: 1:4 dilution used in analysis.

Analyst: Reviewed By: Date: 04/13/89
F. Ramezanzadeh

Reviewed By: Date: 04/13/89

Laboratory Director:

Bartel

À

Project: McGranahan 4.0

Lab ID:

22547

Sample

Location: A3A T1S3

Date

Collected: 03/13/89

Sample

Number: <u>12988</u>

Date

Analyzed: <u>04/12/89</u>

Analyte Detection Concentration Limit

Soil ug/g ug/g
(ppm) (ppm)

Total Concentration:
Standard Oil and Grease Reference 340. 50.

Comments: 1:10 dilution used in analysis.

F. Banezanzadeh

Reviewed By

2 Bate: 04/13/89

Laboratory Director:

Bartely

Project: McGranahan 4.0

Lab ID: <u>22548</u>

Sample

Date

Location: A3A T1S5

Collected: <u>03/13/89</u>

Sample

Number: 12990

Date

Analyzed: <u>04/12/89</u>

	Analyte Concentration ug/g	Detection Limit ug/g
Soil	(DDM)	(ppm)
Total Concentration: Standard Oil and Grease Reference	10.	5.

Comments:

Analyst: 1

Reviewed By

Date: 04/13/89

zaden

Laboratory Director:

. M. Bartek

Project: <u>McGranahan 4.0</u>

Lab ID: 22329

Sample

A3E

Date

Location: T1S1

Collected: <u>03/10/89</u>

Sample

Number:

Date 24836

Analyzed: <u>03/28/89</u>

Analyte Concentration ug/g Soil

Detection Limit ug/g

(maga)

(mqq)

Total Concentration:

Standard Oil and Grease Reference

4000.

500.

Comments: 1:100 dilution used in analysis.

Reviewed By

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 22330

Sample

A3E

Date

Location: T1S3

Collected: 03/10/89

Sample

Number: <u>24838</u>

Date

Analyzed: 03/28/89

Analyte Detection
Concentration Limit
ug/g ug/g
Soil (ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

10.

5.

Comments:

Analyst: Reviewed By: Date: 03/29/89
F. Ramerankadeh

Laboratory Director:

M. Barte

Project: McGranahan 4.0

Lab ID: 22331

Sample

A3E

Date

Location: T1S5

Collected: <u>03/10/89</u>

Sample

Number: <u>24840</u>

Date

Analyzed: <u>03/28/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

M. Hogh

Laboratory Director:

Project: McGranahan 4.0

22525 Lab ID:

Sample

Date

Location: A3E T2S1

Collected: <u>03/13/89</u>

Sample

Number: 24842

Analyzed: <u>04/12/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 22526

Sample

Date

Location: A3E T2S3

Collected: 03/13/89

Sample

Date

Number: 24844 Analyzed: <u>04/12/89</u>

Analyte Detection Concentration Limit ug/g ug/g (maga) (mqq)

Soil

120.

Total Concentration: Standard Oil and Grease Reference

900.

Comments: 1:25 dilution used in analysis.

Rapezanzadeh

CDate: 04/13/89

Project: <u>McGranahan 4.0</u>

Lab ID: <u>22527</u>

Sample

Date

Location: A3E T3S1

Collected: 03/13/89

Sample

Date

Number: <u>24846</u>

Analyzed: <u>04/12/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

2600.

200.

Comments: 1:50 dilution used in analysis.

Analyst: 7

Ramezanzadeh Reviewed B

J. M. Hoch

Date: 04/13/89

Laboratory Director:

. M. Bartel

Project: McGranahan 4.0

Lab ID: 22528

Sample

Location: A3E T3S3

Date

Collected: 03/13/89

Sample

Number: <u>24848</u>

Date

Analyzed: <u>04/12/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (mag) (mqq) Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Date: 04/13/89

Project: McGranahan 4.0

Lab ID: 22742

Sample

Date

Location: 3F T1S1

Collected: 03/16/89

Sample

Date

Number: <u>10773</u>

Analyzed: <u>04/11/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

2700.

400.

Comments: 1:80 dilution used in analysis.

Analyst:

Reviewed 1

Date: 04 /12 /00

Ramezanzadeh

Laboratory Director:

Bartell

Project: McGranahan 4.0

Lab ID: 22743

Sample

Location: 3F T1S3

Date

Collected: 03/16/89

Sample

Number:

Soil

10775

Date

Analyzed: _04/11/89

Analyte Detection Concentration Limit ug/g ug/g (mqq) (mag)

Total Concentration: Standard Oil and Grease Reference

10.

5.

Comments:

Reviewed By

Date: 04/12/89

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 22323

Sample

A4A

24824

Date

Location: T1S1

Collected: 03/10/89

Sample

Number:

Date

Analyzed: <u>03/28/89</u>

Analyte Concentration

Detection Limit

Soil

ug/g (mqq)

ug/g (ppm)

Total Concentration:

Standard Oil and Grease Reference

8.

5.

Comments:

Reviewed By

Date: 03/29/89

nezanzadeh

Project: McGranahan 4.0

Lab ID: 22324

Sample A4A

Date

Location: T1S3

Collected: 03/10/89

Sample

Number:

Date _24826 Analy

Analyzed: 03/28/89

Soil
Total Concentration:
Standard Oil and Grease Reference

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

240.

25.

Comments: 1:5 dilution used in analysis.

Analyst:

Ramezanzadeh

Reviewed By:

J. M. Hoch

Date: 03/29/89

Laboratory Director:

N. Bartell

Project: McGranahan 4.0

Lab ID: 22325

Sample

A4A

Date

Location: T2S1

Collected: 03/10/89

Sample

Number: <u>24828</u>

Date

Analyzed: <u>03/28/89</u>

Soil
Total Concentration:
Standard Oil and Grease Reference

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

26.

5.

Comments:

Analyst: F. Ramezanzadeh

Reviewed By

Hoch /

Date: 03/29/89

Laboratory Director:

. M. Bartel

Project: McGranahan 4.0

Lab ID: 22326

Sample A4A

Date

Location: T2S3

Collected: <u>03/10/89</u>

Sample

Number: 24830 Date

Analyzed: 03/28/89

Analyte Concentration ug/g

Detection Limit

Soil

Total Concentration:

(mqq)

ug/g (mqq)

Standard Oil and Grease Reference

7.

5.

Comments:

F. Ramezanzadeh

Reviewed By

Date: 03/29/89

Project: McGranahan 4.0

Lab ID: <u>22327</u>

Sample Location: T3S1

A4A

Date

Collected: <u>03/10/89</u>

Sample

Number: 24832 Date

Analyzed: <u>03/28/89</u>

Analyte Detection Concentration Limit ug/g ug/g (mqq) (mqq)

Soil

Total Concentration:

Standard Oil and Grease Reference

8.

5.

Comments:

Reviewed By

J. M. Hoch

Date: 03/29/89

F. Ramezanzadeh

Project: McGranahan 4.0

Lab ID: 22740

Sample

Location: 4C T1S1

Date

Collected: <u>03/16/89</u>

Sample

Number: <u>10769</u>

Date

Analyzed: <u>04/11/89</u>

Soil

Total Concentration: Standard Oil and Grease Reference

Analyte Concentration ug/g (mqq)

Detection Limit ug/g (mqq)

600.

100.

Comments: 1:20 dilution used in analysis.

F. Ramezanzadeh

Reviewed By

Date: 04/12/89

Laboratory Director:

Project: <u>McGranahan 4.0</u>

Lab ID:

22741

Sample

Location: 4C T1S3

Date

Collected: <u>03/16/89</u>

Sample

Number: <u>10771</u>

Date

Analyzed: <u>04/11/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

900.

100.

Comments: 1:20 dilution used in analysis.

Analyst:

Reviewed By

T M Hock

Date: 04/12/89

F. Ramezanzadeh

Laboratory Director:

(Bartan

Project: McGranahan 4.0

Lab ID: 22741

Sample

Location: 4C T1S3

Date

Collected: <u>03/16/89</u>

Sample

Number: <u>10771</u>

Date

Analyzed: <u>04/11/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

900.

100.

Comments: 1:20 dilution used in analysis.

Analyst: F. Ramezanzadeh

Reviewed By

__Date:<u>U4/1</u>

Laboratory Director:

M. Bartell

Project: McGranahan 4.0

Lab ID: <u>22576</u>

Sample

Location: 5A-G T1S1

Date

Collected: 03/14/89

Sample

Number: 12908

Date

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm)

Total Concentration:

Standard Oil and Grease Reference

30.

10.

Comments: 1:2 dilution used in analysis.

Analyst: Reviewed By: Date: 04/11/89

F. Ramezanzadeh

Laboratory Director:

M. Bartel

Project: McGranahan 4.0

Lab ID: _22577

Sample

Location: 5A-G T1S3

Date Collected: 03/14/89

Sample

Soil

Number: <u>12910</u>

Date

Analyzed: <u>04/10/89</u>

Analyte Concentration

Detection

ug/g (mag) Limit ug/g (ppm)

Total Concentration:

Standard Oil and Grease Reference

11000.

1000.

Comments: 1:200 dilution used in analysis.

Analyst:

F. Ranezanzadeh

_Reviewed By

J. M. Hogh

Date: 04/11/89

Laboratory Director:

M. Bartell

Project: McGranahan 4.0

Lab ID: <u>22578</u>

Sample

Location: 5A-G T1S5

Date Collected: 03/14/89

Sample

Number: <u>12912</u>

Date

Analyzed: <u>04/10/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration: Standard Oil and Grease Reference

660.

50.

Comments: 1:10 dilution used in analysis.

Analyst:

F. Ramezanzadeh

_Reviewed By

M Hogh

Date: 04/11/89

Laboratory Director:

J. M. Ba

Bartel

AN MO

Project: McGranahan 4.0

Lab ID: 22658

Sample

Location: 5AG TXS1 33

Date

Collected: <u>03/15/89</u>

Sample

Number: 12922 Date

Analyzed: <u>03/31/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (maga) (mqq) Total Concentration: Standard Oil and Grease Reference 230. 20.

Comments: 1:4 dilution used in analysis.

Reviewed By:

(Date: <u>04/03/89</u>

Ramezanzadeh

Project: <u>McGranahan 4.0</u>

Lab ID: 22645

Sample

Date Location: 5AG TYS3 90

Collected: 03/15/89

Sample

Number: <u>12924</u>

Date

Analyzed: <u>03/31/89</u>

Soil

Analyte Detection Concentration Limit ug/g ug/g (maga) (mqq)

Total Concentration:

Standard Oil and Grease Reference

2200.

250.

Comments: 1:50 dilution used in analysis.

Analyst:

Reviewed By Ramezanzadeh

Date: 04/03/89

Project: McGranahan 4.0

Lab ID: <u>22646</u>

Sample

Location: 5AG T1S5 90

Date

Collected: 03/15/89

Sample

Number: <u>12926</u>

Date

Analyzed: 03/31/89

Analyte Concentration

Detection Limit

ug/g

ug/g (mga)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

9000.

1000.

Comments: 1:200 dilution used in analysis.

Analyst:

Reviewed By

J. M. Hoch

- Date: 04/03/89

- - 1

Laboratory Directors

M. Bartell

Project: McGranahan 4.0

Lab ID: 22738

Sample

Location: 5AG T3S1

Date

Collected: 03/16/89

Sample

Number: <u>10785</u> Date

Analyzed: <u>04/11/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (mqq)

Soil

Total Concentration: Standard Oil and Grease Reference

< 5

5.

Comments:

Rame zanzadeh

Reviewed By

Date: 04/12/89

Project: McGranahan 4.0

Lab ID: <u>22739</u>

Sample

Location: 5AG T3S3

Date

Collected: <u>03/16/89</u>

Sample

Number: <u>10787</u>

Date

Analyzed: <u>04/11/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

Total Concentration: Standard Oil and Grease Reference

< 5

5.

Comments:

F. Ramezanzadeh

_Reviewed By

, ,

Date: 04/12/89

Laboratory Director:

.\M. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: <u>22568</u>

Sample

Location: 5B-B T1S1

Date

Collected: 03/14/89

Sample

Number: <u>12992</u>

Date

Analyzed: <u>03/29/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

20.

5.

Comments:

Analyst:

anzadeh

Reviewed By: J. M. Hock

Date: 04/11/89

Laboratory Director:

N. Bartel

Project: <u>McGranahan 4.0</u>

Lab ID: <u>22569</u>

Sample

Location: 5B-B T1S3

Date Collected: 03/14/89

Sample

Number: <u>12994</u>

Date

Analyzed: <u>04/10/89</u>

Comments: 1:2 dilution used in analysis.

Analyst: Kargarah F. Ramezanzadeh

_Reviewed By

Date: 04/11/89

Laboratory Director:

o. M. Bartel

Project: <u>McGranahan 4.0</u>

Lab ID: <u>22570</u>

Sample

Location: 5B-B T2S1

Date

Collected: <u>03/14/89</u>

Sample

Number: <u>12996</u>

Date

Analyzed: <u>04/10/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

400.

130.

Comments: 1:25 dilution used in analysis.

Analyst:

F. Ramezanzadeh

_Reviewed By

T. M. Hock

Date: 04/11/89

Laboratory Director:

. M. Bart

Project: McGranahan 4.0

Lab ID: 22571

Sample

Location: 5B-B T2S3

Date Collected: 03/14/89

Sample

Number: 12998 Date

Analyzed: <u>04/10/89</u>

	Analyte Concentration	Detection Limit
Soil	ug/g (ppm)	(mad) ug/g
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By

F. Ramezanzadeh

Laboratory Director:

. M. Hock

Project: McGranahan 4.0

Lab ID: _22572

Sample

Date

Location: 5B-C/D T1S1

Collected: 03/14/89

Sample

Date

Number: <u>13000</u>

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit

ug/g ug/g

Soil (ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

150.

25.

Comments: 1:5 dilution used in analysis.

Analyst: J.K.

Reviewed By

Date: 04/11/89

F. Ramezanzadeh

Laboratory Director:

J. M. Hoch

M. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: _22573

Sample

Location: 5B-C/D T1S3

Date Collected: 03/14/89

Sample

Number: 12902

Date

Analyzed: _04/10/89

Analyte Detection Concentration Limit ug/g ug/g (ppm)

Total Concentration:
Standard Oil and Grease Reference 10. 5.

Comments:

Analyst: F. Ramezanzadeh

Reviewed By:
J. M. Hooh

Date: 04/11/89

Laboratory Director:

J. M. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: <u>22574</u>

Sample

Date

Location: 5B-C/D T2S1

Collected: 03/14/89

Sample

Date

Number: <u>12904</u>

Analyzed: <u>04/10/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst:_

- Reviewed By

Date: 04/11/89

F. Ramezanzadeh

Laboratory Director:

M. Bartell

Project: McGranahan 4.0

Lab ID: 22575

Sample

Location: 5B-C/D T2S3

Date Collected: 03/14/89

Sample

Number: 12906 Date

Analyzed: <u>04/10/89</u>

300.

Analyte Detection Concentration Limit ug/g ug/g Soil (maga) (maga) Total Concentration: Standard Oil and Grease Reference

Comments: 1:10 dilution used in analysis.

Reviewed By

50.

Laboratory Director:

Project: McGranahan 4.0

Lab ID: _

22316

Sample

A5B-E

Location: T1S1

Date

Collected: <u>03/10/89</u>

Sample

Number: <u>24810</u>

Date

Analyzed: <u>03/28/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst: Kong of

Reviewed By:

Date: 03/29/89

F. Ramezanzadeh

Laboratory Director:

. M. Bartel

Project: <u>McGranahan 4.0</u>

Lab ID: <u>22653</u>

Sample

Location: 5BL T1S1

Date Collected: 03/15/89

Sample

Soil

Number: <u>12940</u>

Date

Analyzed: <u>03/31/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

140.

20.

Comments: 1:4 dilution used in analysis.

Analyst Reviewed By: Date: 04/03/89
F. Ramezanzadeh

Laboratory Director:

J. M. Bartell

<u>McLaren</u>

Project: McGranahan 4.0 Lab ID: 22654

Sample Date

Location: 5BL T1S5 Collected: 03/15/89

Sample Date

Number: <u>12942</u> Analyzed: <u>03/31/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (ppm) (ppm)

Total Concentration:
Standard Oil and Grease Reference < 5 5.

Comments:

Analyst Reviewed By Date: 04/03/89
F. Ramezankadeh

J. M. Hoch

Laboratory Director: Sallown-for

o. m. Barter

Project: McGranahan 4.0

Lab ID: <u>22656</u>

Sample

Date

Location: 5BI T1S3

Collected: 03/15/89

Sample

Date

Number: <u>12946</u>

Analyzed: <u>03/31/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

5000.

500.

Comments: 1:100 dilution used in analysis.

Analyst: Reviewed By: Date: 04/03/89
F. Ramezanzadeh

Laboratory Director;

J. M. Bartell

Project: McGranahan 4.0

Lab ID: _22657

Sample

Location: 5BI T1S5

Date Collected: 03/15/89

Sample

Number: <u>12948</u>

Date

Analyzed: <u>03/31/89</u>

Soil Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

3400.

500.

Comments: 1:100 dilution used in analysis.

Analyst: Reviewed By: M. Hoch Date: 04/03/89

Laboratory Director:

J. M. Bartel

Project: <u>McGranahan 4.0</u>

Lab ID: <u>22746</u>

Sample

Location: 5BK T1S1

Date Collected: 03/16/89

Sample

Number: 24301

Date

Analyzed: <u>04/11/89</u>

	Analyte Concentration	Detection Limit
<u>Soil</u>	ug/g (ppm)	(bbw) nd/d
Total Concentration:		

Total Concentration: Standard Oil and Grease Reference

150.

25.

Comments: 1:5 dilution used in analysis.

Analyst: Remezanzadeh Re

Reviewed By:

_Date:<u>04/12/89</u>

Laboratory Director:

f. M. Bartell

Project: McGranahan 4.0

Lab ID: 22747

Sample

Date

Location: 5BK T1S3

Collected: 03/16/89

Sample

Date

Number: 24303 Analyzed: 04/11/89

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration:	. =	_
Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By

- Date: <u>04/12/89</u>

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 22317

Sample

A5B-E

Date

Location: T1S3

Collected: 03/10/89

Sample

Number: 24812 Date

Analyzed: <u>03/28/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference		
scandard off and Grease Reference	< 5	5.

Comments:

Reviewed By

Laboratory Director:

Project: <u>McGranahan 4.0</u>

Lab ID: <u>22318</u>

Sample

A5B-E

Date

Location: T2S1

Collected: <u>03/10/89</u>

Sample

Date

Number: <u>24814</u>

Analyzed: 03/28/89

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

Total Concentration:
Standard Oil and Grease Reference 120. 10.

Comments: 1:2 dilution used in analysis.

F. Ramezanzadeh

Reviewed By:

' Date:<u>03/29/89</u>

Laboratory Director:

M. Bartell

McLa

Project: McGranahan 4.0

Lab ID: <u>22319</u>

Sample

A5B-E

Date

Location: T2S3

Collected: 03/10/89

Sample

Number: 24816 Date

Analyzed: <u>03/28/89</u>

Analyte Detection Concentration Limit ug/g ug/g (maga) (maga)

Soil

Total Concentration: Standard Oil and Grease Reference

800.

100.

Comments: 1:20 dilution used in analysis.

Laboratory Director:

Reviewed By:

Project: McGranahan 4.0

Lab ID: 22320

Sample

A5B-E

Location: T3S1

Collected: 03/10/89

Sample

Number: 24818 Date

Date

Analyzed: <u>03/28/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (mqq) (maga) Total Concentration:

Standard Oil and Grease Reference

300.

25.

Comments: 1:5 dilution used in analysis.

Reviewed By

Date: 03/29/89

Laboratory Director:



Project: McGranahan 4.0

Lab ID: <u>22321</u>

Sample

A5B-E

Date

Location: T3S3

Collected: 03/10/89

Sample

Number: <u>24820</u>

Date

Analyzed: <u>03/28/89</u>

Comments: 1:4 dilution used in analysis.

Analyst: Karafa F. Ramezanzadeh

_Reviewed By

Date: 03/29/89

Laboratory Director:

J. M. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: 22322

Sample

A5B-E

Date

Location: T3S5

Collected: 03/10/89

Sample

Number:

24822

Analyzed: <u>03/28/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (mqq) (maga)

Total Concentration:

Standard Oil and Grease Reference

2600.

400.

Comments: 1:80 dilution used in analysis.

Reviewed By

(Date: 03/29/89

Laboratory Director:

Project: McGranahan 4.0

Lab ID: <u>22655</u>

Sample

Date

Location: 5BI T1S1

Collected: <u>03/15/89</u>

Sample

Date

Number: <u>12944</u>

Analyzed: 03/31/89

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	7.	5.

Comments:

F. Ramezanzadeh

J. M. Hoch

(Date: 04/03/89

Laboratory Director:

J. M. Bartell

<u>McLaren</u>

212676

L.P. 1537

			(a .						far Zonke	af
PROJECT D	ESIGNATION MC 67A	nahai	7 L	1.0	MPLE TY		AMPLES TAKI	EN BY: LAWY	11 Benke	:/
AREA	SAMPLE LOCATION	DATE	TIME	WA	TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALY	
5AE	T151	3.16.29			•	X	10789	6"hibes	418.	(227
:	T152						10730		Analy	ENCH!
	T153				,		10791		418.	/ (227
	T154						10792		Arcaty	18
5AD	TISI						10793		418.	1(2273
	T152						10794		Arch	rive
	T153						10795		418.	/(2273
	T154						10796		Arch	hive
5AC	T151						10797			? /(227
	TIST	14				1	10798		Avel	rive
IMMEDIAT STORAGE	TE DELIVERY (1)			ı			· •	SECURED	3	
RELINQUISH	e Benkel A	e Du	ef	RECE	EIVED BY	Y:*		,	DATE/ 3.16.29	1
RELINQUISH	ED BY:	,		RECE	IVED-B	/:•			DATE/	TIME
RECEIVED F	hal D. F	leventu	ng	MIC	HAEL	N. N	EUENBUI	RG	3/17/89	TIME 10-30
METHOD OF	dev		<i></i>							-
LABORATOR	Y DISPOSITION: ANALYSIS JST3 TO EMAN SANTA A E AFTER SIGNATURE	SAMP	LES	REC	FIVE	n				
IMMEDIATE A	NALYSIS .	INSTOR	9 5 0 (CONE	OITIC	NREF	RIGERATOR [] ID		SECURED
Amak	1513 TO EMAN	net t	•		1 9	FRE	EZER [] ID		
	' Santa A	na				CABI	NET [□ 10		YES NO
* PRINT NAM	E AFTER SIGNATURE									
								-		

Å\

212675

L.P. 1537

		,							Zan Be	
PROJECT D	ESIGNATION MCGVA	nahan	У.,				AMPLES TAK	ENBY: Laur	ne Ben	Kel
AREA	SAMPLE LOCATION	DATE	TIME	WA	MPLE TY TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALY REQUI	(SIS RED
25	T153	3.16.89				X	10779	6"tubes	418.	2273
	T154						10780	1	Hychi	
3F	TISI					- 1	10781		418.	. / (227)
	T152	1				į	10782			ive
	T153						10783			0./(227
	T154					Ì	10724		Mrc	hive
5AG	T351						10785		418	2. / (=27
	T352						10786		Arch	
	T353					j	10787		418	3. / (22-
	T354	2				J	10788		Avel	8. 1 (22- 171VC
FIELD DISPO	TE DELIVERY	ID					·	SECURED YES		
RELINQUISH	ED BY: PENKEL Au	Buil	,, ·	RECE	EIVED B	Y:*			DATE	
RELINQUISH	ED BY:			RECE	IVED B	Y:*			3.16.89 DATE	
RECEIVED FO	OR LABORATORY BY:	ouen bus		ivit	CHAE	<u> </u>	MEUENE	URG	DATE/ 3/17/89	/0:30
METHOD OF	SHIPMENT: FBD EX)				, , , , , , , , , , , , , , , , , , , ,			
LABORATOR	Y DISPOSITION:	SAMP	LES	REC!	iye:					
	unalysis Emanile Sants e after signature	AHOLE ALL		OND	ITiO	\; REFI		ID	·	SECURED D YES NO
<u> </u>										•



212674

Lif. 1537

		,				•				fer Z	na (
PROJECT D	DESIGNATION Mc GYA	mahan	4.5			S	AMPLES TAK	EN BY:	Laura	Benkel		
AREA	SAMPLE LOCATION	DATE			MPLE T	YPE	_					
ANEA	SAMPLE LOCATION	DATE	TIME	COMP	TER GRAB	SOIL	SAMPLE NO.		YPE AINER(S)	ANALY REQUI	'SIS RED	
4C	T151	3.16.89				X	10769	6"+	ubes	418.1	(22	
	T152						10770			Avch	ive	
	T153						10771	3	•	418.	16	2=7
	T154						0772			Avel	rive	
3F	TISI	1					10773		i.	4712	1 6:	270
	TIS2	7					10774			Arch	,	==
	T153	1					10775			418.	1	227
	T154						10776),		Arch	_	=
2D	+153						10777			412	10	227
20	T153						10778	1	,	Avel	ive	
FIELD DISPO	DSITION:					•						
IMMEDIA	TE DELIVERY 🔂											
STORAGE							:	SECURE	D YES	_		
RELINQUISH		<u>ID</u>		BECE	IVED B	V.•			□ NO~			
	e Benkel Jan	Ra. P		neo.		·				DATE/	1	
		the start		ļ							5pm	n
RELINQUISH	BED BT:			RECE	IVED BY	<u> </u>				DATE/	TIME	
RECEIVED F	OR LABORATORY BY:*		-							DATE/	TIME	
	inul 1).	Meun	Jours	7	MICH	AEL I	M. NEUE	15UK	Ç.	3/17/89	10.70	9
METHOD OF	SHIPMENT: ED EX				•					· · · · · · · · · · · · · · · · · · ·	μ,ε.	
L ABORATOR	V DISPOSITION:	SAMPL		277	1775	*						
IMMEDIATE A	ANALYSIS 🗆	N STORA	3E 🗓 🖰	MDI	tion	REFR	RIGERATOR (⊐ ID			SECUR	RED
Dry	alini to Emai	nuel F.	4 .			FREE	ZER [] ID				
* PRINT NAM	ANALYSIS () ANALYSIS () EASTER SIGNATURE	auta t	ma			CABI	NET (] ID			YES	NO
	<u>=</u>											1
Ž Ž	McLaren Envir	onmental E	nginee	ering							Ţ,	F

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696

212677

L.P. 1537

		,					•		<i>. M</i>	je Berke	7	
PROJECT D	ESIGNATION McGra	nahan	4.0		APLE T	SA	AMPLES TAK	EN BY:*	Laur	PEDLAKE	<u>/</u>	
AREA	SAMPLE LOCATION	DATE	TIME	WAT	ΓER	SOIL	SAMPLE NO.	TY	PE INER(S)	ANAL\ REQU	/SIS	
5AC	T153	3.16.89				X	18799	6'70		418	7 -	27
	T154						10800			Arch		
5BK	TISI						1080t	~		418	10	227
	TISZ						10302			Arch		
	T153						10803			418		
	T154						10804			Arch	ive	
						1						
			,		,							
						\checkmark						
FIELD DISPO IMMEDIAT STORAGE	TE DELIVERY (5 ans	sle	mu	ut no	-	unfrem	SECURED	•	L.B	3 <i>/17</i> .	/ >
RELINQUISH	ie Benkel	in Bu	ef	RECE	IVED B	/: *				DATE	1	
RELINQUISH	EDENKEL X		<u>. </u>	BECE	IVED BY	/.•	-			3.16.89 DATE	<u> </u>	" 1
		_		11.202		' <u>'</u>				DATE	LIME	
- 9h	or Laboratory by:	Fleinen b	my	ins ·	CHA	L N.	NEUENS	URG		3/17/89	TIME /0.3	 3 0
METHOD OF	SHIPMENT: Fed EX						,				N.M.	V.
LABORATOR'	Y DISPOSITION	ARIPLE I GOOD STORA	GEON	CE: IDITI	ED ON	REFF	RIGERATOR (SECUF	RED
Anal	ysis to Emanu San	_				FREE		□ · ID				
	E AFTER SIGNATURE	ta Ama				CABII	NET (□ ID		•	YES	NO
_					-							

<u>i</u>

2 212672

L.P. 1526

PROJECT D	ESIGNATION McGri	una ha r	า ฝ	0			SA	MPI ES TAKI	EN RY:*	1	fan Finks] init	Ç
	, , , , , , , , , , , , , , , , , , , 	1	, ,		MPLE TY	YPE		THE CESTAIN		Litte	IE DANKA	-/	
AREA	SAMPLE LOCATION	DATE	TIME		GRAB	soı		SAMPLE NO.	TYPE CONTAINER(S)		ANALYSIS REQUIRED		•
ZE	ज्161	3.15.89				X		12932	6"	tribes	418.	10	1265
	TISZ							12933	······································		Archi	_	
	7153							12934			418	.1 /	721
	T154							12935			Hvcl		~
24	<u>TISI</u>	ĺ				_		12936		!	418	, 1<	226
	丁152							12937			HVC	hiv	e
	T153						أ	12938			418		
	T154							12939			Arc	hive	2
5BL	T151				2		4	12940			418	1.10	=======================================
	T152					7		12941		,	Ave	Line	و
STORAGE	TE DELIVERY	ID						\$	SECURE	O YES	·		
RELINQUISH	ED BY:	Rul	\int	RECE	IVED BY	/: "					DATE	1	
Laurie	Benkel An	المراجع المراجع					_				3.15.89	$ \mathcal{S}_{F} $	>~1
RELINQUISH	ED BY:*			RECE	IVED BY	/:• 					DATE/	TIME	
	OR LABORATORY BY:	Denen	long	y 181	CHAE	L.V	. ,	MEUENB	URG		DATE/ 3/16/99	TIME /ジ:/	— 15
METHOD OF	SHIPMENT:	~							1				
LABORATORY	Y DISPOSITION:	PLES RE	CEN	ΈD		······································	ν.						
IMMEDIATE A	NALYSIS 🗆 💎 💢 🔾	STORA	GE UT	ION		RE	FRI	GERATOR [] ID	_ · <u></u> -		SECU	JRED
Ren	irn analysis -	to Em	anu	e/ 7	_	FRE	EEZ	ZER [] ID				
	EAFTER SIGNATURE	San	ta,	Ana	ـ	CAE	BIN	IET [] ID			YES	NO

Å

212673

L.P. 1526

								EN BY: Lau	Jan Bo	Sf.
PROJECT D	ESIGNATION Mc GVA	nahad	7 !	1,0		SA	MPLES TAK	ENBY: Lau	Vie Benk	ind
AREA	SAMPLE LOCATION	DATE	TIME	WA	MPLE TY TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANAL	YSIS
5BL	T153	3.15.89				X		6"tubes	418.	
1	T154	ı					12943			rive
5BI	T151						12944		418.	1 (226
	.7152						12945		Ave	hive
	T153						12946		418	3.1 (226
	T154						12947		Avel	rive
	T155						12948		418	3. (==65
	T156					1	12949	1	Avc	hive
								·		
·										
FIELD DISPO	_									
STORAGE	TE DELIVERYX	ID					9	SECURED YES		
	FREEZER							□ NO		
RELINQUISH	ED BY:	ź. \$	d	RECE	IVED BY	/: *			DATE	/TIME
Laur	ie Benkel		ce of	_					3.15.59	Spn
RELINQUISH					IVED BY	/: *			DATE	/TIME
								 -		
RECEIVED FO	OR LABORATORY BY:)	,	1.					DATE	1
	whall 1 - 1	lucul	rug	: <u>'</u>	HCHA	EL M	MEUENI	BURG	3/16/89	10:15
METHOD OF	Fed Ex		,	,						
LABORATOR	Y DISPOSITION:	TELES!	RECE	IVE)					
IMMEDIATE A	NALYSIS 🗆 💮 😘	UUDORA	GE (I)	TIOI	Ą	REFR	IGERATOR [al [SECURED
Retus		Ema	nu	e/ 7	- -	FREE] ID		
* PRINT NAMI	E AFTER SIGNATURE	Sai	-721	And	۹,	CABIN	NET [] ID		YES NO
盖	<u> </u>				•					



212659

LiP. 1500

									, Ja	a Ba	ef
PROJECT D	ESIGNATION MCGY	anahan	4	.0			AMPLES ŢAK	EN BY:	Laur.	ie Bake	2 /
4054	CAMPLELOCATION	DATE	TIN 45		MPLE TY	YPE	_				
AREA	SAMPLE LOCATION	DATE	TIME	COMP	TER GRAB	SOIL	NO.	TYPE CONTAINER(S)		ANALY REQU	rsis IRED
A53-	E T191	3/10			×	X	94810	6"+	ubes	418.	1(223)
	T152						24811			Avch	iive
	T153						24812			418	. / (223
	T154						24813			Arci	hive
	T251						24814			418.	(233
	T252						र4815			AIZCH	WE
	1253						24810			418.	1 (2 23)
· .	T2 S4						24817			AZCHI	いじ
	T35 11			٠,			24818		·	418.	- \ 223
	T3 52	1			$\sqrt{}$		2439		·	D13(11)	JE
FIELD DISPO		•				•		•			
	TE DELIVERY 💢	_									
STORAG	E 🗆 REFRIGERATOR 🗆 FREEZER 🔔	i iD	- .					SECURE	YES NO□		
RELINQUISH		20	-	RECI	EIVED B	Y:*				DATE	TIME
Laurie	Benkell t	My		-						03-60-8	9 5pm
RELINQUISH	IED BY:			REC	EIVED B	Y:*				DATE	TIME
RECEIVED F	OR LABORATORY BY:	1)	,							DATE	/TIME
	Milue 1.	Man	enla	M)	MIC	HAE	L M. NEU	ENSUM	Ü	1/11/49	8:30
METHOD OF	SHIPMENT: /			/						1	
721											· · · · · · · · · · · · · · · · · · ·
	IY DISPOSITION:	INPLES	REC	2.02		חרר	DICEDATOR	c			0504055
IMMEDIATE .	Enjanu	er Falk	oceru	PITIC	M		RIGERATOR	□ ID			SECURED
Anales	Analysis to Dennis Deneen							□ ID			YES NO
PRINT NAM	IE AFTER SIGNATURE A	na				J. 3-	· · · - ·				. 20 140
<u>=</u>	<u> </u>										

212671

L.P. 1500

		uma ha	1 X				اد ست	en Leef	
PROJECT	DESIGNATION MC 61	TUNU HUN		MPLE T		AMPLES TAK	EN BY: LAUY	IE BENK	<i>e1</i>
AREA	SAMPLE LOCATION	DATE TIME		TER	1	CA145: 5	TVDE		
				GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALY REQUI	
5B-E	7353	3/10		×	Y	24820	6 TUBE	418,1	2232
	T3 54			į		24821		DIZ (1(1	JE
	T355					24822		418.1	(223)
	T356					24823		AZCULL	E
44	7151				-	24824		418.	(X=3
	T152					24825		AZCHIL	JE
	T153	. \			1	4826		418,1	(22
	-15A				2	4827		ARCHIG	ve_
1	T251 1	14	,	1,	1/2	4828		418-1	(5,2)
	1252	γ		4	V 2	1829	V	ARCHIV	E
FIELD DISPO	OSITION:					•			
	TE DELIVERY X								
STORAGI	FREEZER	ID				:	SECURED DEYES		
RELINQUISH			RECE	IVED B	Y:*		□ NO	DATE/	TIME
Lauri	e Benker	Bull	-					03-10-89	1
RELINQUISH	IED BY:*		RECE	IVED B	/:•			DATE/	
RECEIVED F	OR LABORATORY BY:	1				•		DATE/	TIME
1	hal 11. 110	uen/my	M	ICHA!	<u> El</u> M.	HEUSME	BURG .	3/11/89	8:30
METHOD OF سو	SHIPMENT:								<u> </u>
JEC	DEX	RAMPIES =		, w. a.					
	Y DISPOSITION:	V GCCD C	MULI	ION					
IMMEDIATE /	ANALYSIDA	STORAGE [□ ID		SECURED
Return	n Analysis to BE AFTER SIGNATURE S	Emanu	el Fa	Kou	FREE	ZER [] ID		
PRINT NAM	E AFTER SIGNATURE	anta Ar	a		المحار		_ IV		YES NO
Ė									
	McLaren Enviro	onmental Engin	eering						

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696

212670

L.P. 1500

PROJECT	DESIGNATION MCG	ranahe	211 S	1.0	•	SA	AMPLES TAK	EN BY: TOUR	on Berk	6	
					MPLE T	YPE		72000			
AREA	SAMPLE LOCATION	DATE	TIME	COMP	TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALY REQUI		,
<u> </u>	+253	3/10			4	*	24830	6 TUSE	418.	13	232
-	TZ <a< td=""><td></td><td></td><td></td><td></td><td></td><td>21831</td><td></td><td>ARCHIU</td><td>臣</td><td></td></a<>						21831		ARCHIU	臣	
	T351		-				14832		418 5	<u>((</u>	3
	7352					2	4933		DECM	2	
	7353					12	1584		418.	<u>(</u>	<u>ب</u> يدية
Ψ	1354					/2	1835		AZCHIV		
3 <u>E</u>	T151					2	4836		418-1		23
	1152					24	1837		ARCLIL	1E	
	T153 1			;, .		2	1838	,	418.	<u> </u>	<u> </u>
	7154	1			Y		A839		ARCLIV	E	<u></u>
FIELD DISPO	OSITION: TE DELIVERY 🔯	* S	anpl	e	24	83 4	924	835 AV	ere not	rece	live
STORAG			-				:	SECURED EXYES			
RELINQUISI		1D	•	BECE	IVED B	V.•		□ NO	DATE	T10.45	
•	e Benker Sun	Duri		\ \ \ \					DATE/ 03-10-89	1	pm
RELINQUISH	HED BY:			RECE	IVED B	Y:*			DATE	<u> </u>	<u>pr</u>
DE05" (50.5				<u> </u>							
HECEIVED	FOR LABORATORY BY:	nentra	~1)	MIC	HAE	. N. 9	VEUEN:BU	RG)/ 11/89	1	30
METHOD OF	SHIPMENT: <i>A EX</i>		7						<u> </u>	1	
		LES A	-	ندے ی							
		OD STOR				REFF	RIGERATOR (] ID		SECU	JRED
Rohin	ento Emanuel	FALKNI	ı VO			FREE	ZER [oı			
PRINT NAM	nto Emanuel Wilysis Santa ME AFTER SIGNATURE	Ana	7			CABII	NET [] ID		YES	NO



McLaren Environmental Engineering

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696

212660

L.P. 1500

		ana han		AMPLE T	YPE			rie Benk	
AREA	SAMPLE LOCATION	DATE TI		ATER IP GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALY REQUI	
BE	TI 55	310		×	7	24840	じているで	418.	(2.2.3)
<u>\</u>	7156	7		7	4-	4241	71	ARCHIV	· E
									
:									
<u> </u>									
	·				<u> </u>				
FIELD DISPO	DSITION:	I		<u> </u>	1	<u> </u>			
IMMEDIA*	TE DELIVERY 💢								
STORAGE		ID				;	SECURED Z YES		
RELINQUISH	IED BY:	0/3 0	RE	CEIVED E	Y:*		□NO	DATE	TIME
Laur	re Benker	in Bull						03-10-89	1
RELINQUISH			RE	CEIVED B	Y:*			DATE/	<u> </u>
RECEIVED	OR LABORATORY BY:*			· · · · · · · · · · · · · · · · · · ·				DATE	
	Tuchal A.	Herend	my	Mici	AEL	N. NEUE	NBURG	3/6/59	4:30
METHOD OF Fe	SHIPMENT: A EX	غانا عن حاشة		•				,	
LABORATOR	Y DISPOSITION:	CUI	ידוחו	N N					
IMMEDIATE A	ANALYSIS 🗆	STORAGE			REF	RIGERATOR	□ ID		SECURED
Ketura	analysis to E	wanuer i	ta IKO	ung	FRE	EZER (□ ID	•	
	'Santa 1	ma			CABI	INET (□ ID		YES NO
PHINI NAM	E AFTER SIGNATURE								

212661

L.P. 1516

PROJECT DE	ESIGNATION Mc GVA	ena ha u	4	0		SA	MPI ES TAKI	EN BY: Lauri	e Bentel
	170814	, acidy	,.,	SAMPL	LE TY	PE	LEG TAK	- can	- Sermer
AREA	SAMPLE LOCATION	DATE	TIME	WATER		SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALYSIS REQUIRED
A3E	12 ES1	3-13-89				X	24842	6"tubes	418.1 (2253)
	T252						34843		Archive
	T253					\perp	24844		418.1 (=25=6
	T254						24845		trchive
	+351						24846		418.1 (======
	T362						24847		Archive
	T353						24843		418.16=5
<u> </u>	T354		,	1			24849		Archive
A2K	+151···						24850		418. (2259)
	T/52					\downarrow	34851	12951	Archive
STORAGE	FREEZER	ID		RECEIVE	ED BY	r.•		SECURED ØYES	
Lauri	eBenker Jan	i Su	4	AECEIVE		<u>. </u>			DATE/TIME 3.13.89 Som
RELINQUISH	ED BY:*			RECEIVE	D BY	·*	DATE/TIME DATE/		
METHOD OF	DR LABORATORY BY: Left 1 - 1 SHIPMENT: A EX	kuent	wy	MI	СНА	\EL ?	I. NEUER	IBURG	3/14/89 10:30
LABORATOR	/ DISPOSITION:	202-						****	
IMMEDIATE A	NALYSISYD	N AGO 652	ĞĒ□:	ECEIVE	ב] ID	SECURED
	NALYSISY Sauta,	Ana	# 3 0	NDITIO	M	CABI	_] ID	YES NO
PRINT NAMI	E AFTER SIGNATURE McLaren Enviro	onmental E	ngine	ering	•				

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696

212662

v.f- 1516

		,	_					ن ر	Law Beeld reBenkel			
PROJECT D	ESIGNATION Mc Gra	anahan 4	7.0			S	AMPLES TAK	EN BY: Laur	réBenkel			
					MPLE TY	YPE		•				
AREA	SAMPLE LOCATION	DATE	 		TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALYSIS REQUIRED			
AZK	T153	3-13-89				X	12952	6"tuber	12 418, 12			
	T154						12953		Archive			
	T251						12954		418.1 (225			
	T252						12955		Archive			
	T253						12956		Archive			
	T254						12957		Archive			
	1255						12958		418. [==5			
	T256						12959	~	Archive			
	t257	• .		. •			12460	·	4/8. 122			
	T258					V	12961	1	Archive			
FIELD DISPO	DSITION:	•										
IMMEDIA	TE DELIVERY X											
STORAGE	REFRIGERATOR	□ ID					:	SECURED &YES	:			
		□ ID						□ NO				
RELINQUISH	ED BY:	2 66		RECE	IVED B	Y:*			DATE/TIME			
Laune	Berkel Jan	July	<u>,. </u>					3.1399 Spin				
RELINQUISH	IED BY:			RECE	RECEIVED BY:* DATE/TIME							
RECEIVED,F	OR LABORATORY BY:	•	, .	1				· · · · · · · · · · · · · · · · · · ·	DATE/TIME			
H	Calinal A	1 6.4.	/	•	MIChi	REL .	V. Neuen	iBURC	3/14/99/11/20			
METHOD OF	SHIPMENT:	1 (LAGA	70-007	<i>y</i>			<u> </u>		12/1/4/1/0-30			
<i>B</i>	ED EX											
LABORATOR	Y DISPOSITION:	Samo: -										
IMMEDIATE A	ANALYSIS 🔯 .	-STOR	GE 🗆	CZIY	50	REF	RIGERATOR [] ID	SECURED			
Return	analysis to En	vanuel	Falk	ama	ŽM.	FREE	EZER [] ID	0 0			
portor	Sa	vanuel unta it	na			CABI	NET (] ID	YES NO			
PRINT NAM	E AFTER SIGNATURE											

212663

V.P. 1516

			,							fair But	
PROJECT D	ESIGNATION Mc EN	una	han	4.0			S	AMPLES TAK	EN BY: Laur	retencel	
ADEA	SAMPLE LOCATION		ATE	TIME		MPLE T	YPE	4			
AREA	SAMPLE LOCATION		ATE	TIME	COMP	GRAB	SOIL	SAMPLE	TYPE CONTAINER(S)	ANALYSIS REQUIRED	
AZIJ	TISI	3.1	3.89				X	100	6"tribes	# 418. 13:	
	T152			,				12963		Archive	
	T153						,	12964		418.6=2	
	T154							12965		Archive	
	Tasi							12966		418. 1==	
	Tasa							12967		Archive	
	T253							12968		418.1(22	
	Ta 54							12969		Archive	
	T351.		:		-			12970	14	418.1 (225	
	T352	1	/					12971		Archive	
FIELD DISPO	SITION:		•					;			
IMMEDIA	re delivery 🗖							;			
STORAGE	REFRIGERATOR	ID							SECURED ØYES □ NO		
RELINQUISH	_	3	. Ti	-	REC	EIVED B	Y:*	1		DATE/TIME	
Lauri	e Berkel Jun (اعن	7					31389 SPM			
RELINQUISH	ED BY:*				RECI	RECEIVED BY:* DAT					
. —	1										
RECEIVED F	OR LABORATORY BY:	\mathcal{A}	Eul:	Lu	√ 1	.Al(CHÄÉ	L .l. nei	Ensurg	DATE/TIME 3/14/84 11:30	
METHOD OF	SHIPMENT:		<u></u>	<u>v:</u>	/					12////01/ 9:30	
Fea	d Ex								\		
LABORATOR	Y DISPOSITION:								· · · · · · · · · · · · · · · · · · ·		
IMMEDIATE A	analysis to En	SA	KAÇTÊ	GE.			REFI	RIGERATOR (□ ID	SECURED	
Behum,	analysis to En	it	REC	rtal	Cour	1/19	FREI	EZER (] ID		
•	Sa	ent	A	na	IDNC	TION	CABI	NET [] ID	YES NO	
	E AFTER SIGNATURE					• •					
Ė											
	McLaren Envir	onme	ental E	ngine	ering					1	

212564

L.P. 1516 PROJECT DESIGNATION McGrahah 4.0 Laurre + SAMPLES TAKEN BY:* SAMPLE TYPE AREA SAMPLE LOCATION DATE TIME WATER SAMPLE **TYPE ANALYSIS** SOIL COMP GRAB NO. CONTAINER(S) 3.13.89 2472 2257/0 G2545 FIELD DISPOSITION: IMMEDIATE DELIVERY STORAGE □ REFRIGERATOR □ ID SECURED X YES RELINQUISHED BY: RECEIVED BY:* DATE/TIME RELINQUISHED BY: RECEIVED BY: DATE/TIME RECEIVED FOR LABORATORY BY:* DATE/TIME MICHAEL II. NEUENBURG 11:50 METHOD OF SHIPMENT: SAMPLES RECEIVED LABORATORY DISPOSITION: IN GOOD GENDITION IMMEDIATE ANALYSIS REFRIGERATOR | ID ___ SECURED **FREEZER** Emanuel F. CABINET YES NO

212665

U.P. 1516

	.4	,						Z	zn Sal	8
PROJECT D	ESIGNATION ME Gre	anahan	1 1	.0		SA	AMPLES TAK	EN BY: Lall	ie Benke	L
					MPLE T	YPE				
AREA	SAMPLE LOCATION	DATE	TIME		GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALY REQUI	
AZC	T351	3.13.89				X	12982	6"tubes	418	2./225
·	<i>T353</i>						12983		Arc	hive
	T352						12984		410	3. 1(22
	T354						12985		Ar	chive
A3A	T191						12986		410	3. 1(225
	TISZ						12987		AYC	hive
	TIS3						12988		41	8.100
	T154			·			12989	7	4	8 Archi
	7155			į			12980		. 418	2.
	T156						12991		Arc	hive
FIELD DISPO	,									
IMMEDIA STORAGI	TE DELIVERYA	15						SECURED TO YES		
STORAGI	·	10					•	D NO		
RELINQUISH	IED BY∷	27	\mathcal{D}	RECE	IVED B	Y:*			DATE/	TIME
Laur	ie Benkely	an gi	7						3.13.29	5pm
RELINQUISH	IED BY:*			RECE	IVED B	Y:•			DATE/	TIME /
RECEIVED F	OR LABORATORY BY:*			<u> </u>					DATE/	TIME
. h.	what n.	Flora EN	Jru	.w -	MICH	MEL	.a. Neuz	NBURG	3/14/89	10:30
METHOD OF		<u> </u>	<u> </u>						122 7 107	<u> </u>
LABORATOR	Y DISPOSITION:			· · · ·						
IMMEDIATE A	ANALYSIS 🗆 SA	STORA	GET!	EIVE		REFF	RIGERATOR [□ ID		SECURED
du	aleysis to 5	radicel ta An	O)H	ITIO	M	FREE	ZER [□ ID		
		ta An	سن			CABI	NET [□ ID		YES NO
* PRINT NAM	E AFTER SIGNATURE									
	McLaren Envir	onmental E	ngine	ering						

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696

Aren Analytical Laboratory n of Custody Record L.P. 1519 Laurie Benkel REPORTS TO: EMMANUAL FAKHOURY SAMPLES TAKEN BY: SIGNATION Mc Granahan SAMPLE TYPE ANALYSIS REQUIRED TYPE SAMPLE CONTAINER(S) WATER SOIL TIME DATE NO. SAMPLE LOCATION COMP GRAB 6"tubes 12992 Archive 1-14-79 12993 412. Archive 412.1 22570 Archive (22571) Archive ISPOSITION: SECURED YES TE DELIVERY 🛛 □ NO REFRIGERATOR [] ID DATE/TIME RAGE [3-14-29 RECEIVED BY: 5pm FREEZER DATE/TIME SHED BY: rie Benkel RECEIVED BY: DATE/TIME Cumbung MICHAEL N. NEUENBURG 3/15/89 10:00 D FOR LABORATORY BY: SAMPLES RECEIVED OD OF SHIPMENT: IN GOOD CONDITION DA EX SECURED REFRIGERATOR | ID _____ ORATORY DISPOSITION: STORAGE [□ ID FREEZER NAME AFTER SIGNATURE South And NO E ATE ANALYSIS YES □ ID ____ CABINET



McLaren Environmental Engineering

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696

212667

v.P. 1519

	***	ſ		<					Ja	ie Benke	$\{[]$
PROJECT DI	ESIGNATION MC GYÜ	mahai	74.	· -			AMPLES TAKE	EN BY:	dur	10 Benke	<u> </u>
AREA	SAMPLE LOCATION		TIME		MPLE TY	YPE					
AREA	SAMPLE LOCATION	DATE	TIME	COMP		SOIL	SAMPLE NO.	CONTAIN	NER(S)	ANALY: REQUIF	SIS RED
5B.C/D	T153	3.14.89				X	12902	6"ti	ibes	418.	12257
	T154						12903			Arch	
辞	T251	i					12904			412.	(2:57
	tasz					İ	12905	-		Arch	_
	T253		,				12906			418.	V=25;
	T254				,		12907			Arch	ive
4-G	1151						12908			418.	1 (2257
	TISZ						12909			Arch	
	T153						12960			418.	1 (225
	†154						12911			Avel	
FIELD DISPO	SITION:										
	E DELIVERY DEL										
STORAGE							;	SECURED			
RELINQUISH		ID		BECE	IVED B	V·•			□NO	DATE/	TIME
	Beulel fail	Bull		-		-				3.14.29	1
RELINQUISH				RECE	IVED B	Y:*				DATE/	
PECEIVED E	OR LABORATORY BY:*									DATE/	TIME
RECEIVED	muhal A	47		<i>[</i>	MIC	HAEL	N. NEUS	ENBURG	3	3/15/09	10:00
METHOD OF	/		uen.	ing	,	-				11/2/8/	70.00
Fe	1				••						
LABORATOR	Y DISPOSITION:	SAMPLE	C DI	*^="							
IMMEDIATE A	NALYSIS []	N GÔTH	GET	ハレン	/ED	REF	RIGERATOR (□ ID			SECURED
Retun	Malyn to E	manuel	Falls	abuil	ION	FREI		□ ID			U U
PRINT NAM	E AFTER SIGNATURE	Sunta	Ana	L 1		<u>-</u> .	·		_		. 20 110
Ė							,				



212668

L.P. 1519 PROJECT DESIGNATION MCGVanahan SAMPLES TAKEN BY: LAUVIE Benk 4.0 SAMPLE TYPE **AREA** SAMPLE LOCATION DATE TIME WATER SAMPLE TYPE **ANALYSIS** SOIL COMP GRAB CONTAINER(S) 6 tubes 12912 3.14.29 12913 trenive FIELD DISPOSITION: IMMEDIATE DELIVERY STORAGE [] REFRIGÈRATOR 🗆 ID _ SECURED TYES RELINQUISHED BY:* **RECEIVED BY:*** DATE/TIME 3.14.29 Spin RELINQUISHED BY: RECEIVED BY: RECEIVED FOR LABORATORY BY: DATE/TIME MICHAEL M. NEUEMBURG 10:00 METHOD OF SHIPMENT: LABORATORY DISPOSITION: IN GCCFORAGE DITION IMMEDIATE ANALYSIS REFRIGERATOR | ID ___ **SECURED FREEZER**

i i

PRINT NAME AFTER SIGNATURE

McLaren Environmental Engineering

CABINET

□ ID __

YES

NO

212669

L.P. 1526

220 1505 2		a					,	, ~	Aurie B	Bull	ı
PROJECT D	ESIGNATION MCG/10	ananav) . ·	1,0	MPLE T		AMPLES TAK	EN BY: La	IUVIE B	enkel	
AREA	SAMPLE LOCATION	DATE	TIME	WA	TER	SOIL	SAMPLE NO.	TYPE CONTAINER		ANALYSIS REQUIRED	
5AG		3.15.89				Х	12922	io" tube		18.1	22 22
	T/32					-	12923	i i		rchive	
	T/53						12924		4	18.1	260
	T754			·			12925			vchive	
	TX55		·			1	12926		4	18.4	-26
	TYSLO						12927		1 .	chive	
26	T151						12928		4	18.1	226
	T152						12929			trchive	
	T153				,		12430		\ A	18.1	22
\downarrow	T154						12431	1	1	trchive	_
IMMEDIAT STORAGE RELINQUISH	FREEZER	ID		RECE	IVED BY	··•		SECURED \(\)	10	DATE/TIME	
Laurie	Benkel Lai-	Bul		_			······································	— 3·15·	.	PM	
RELINQUISH	ED BY:*			RECE	IVED BY	': *				DATE/TIME	
Mil		uen/u	~g ·	· · · · · · · · · · · · · · · · · · ·	הניסות	۱ ج ز ر	NEUEN	BURG	3/16	DATE/TIME	: 15
NETHOD OF S	SHIPMENT: ! > EX					,				· · · · · · · · · · · · · · · · · · ·	
ABORATORY	DIOI COTTION.	AMPLE:						· · · · · · · · · · · · · · · · · · ·			···
MMEDIATE A		i GGDD				REFR	IGERATOR [] ID	-	SECL	JRED
hetur	analysis to E	manut	Fak	houry	!	FREE	ZER [] ID		, 🗆	
PRINT NAME	AFTER SIGNATURE	Sauta	An	<i>(</i> -		CABIN	NET [] ID	•	YES	NO
ė											



APPENDIX B

LABORATORY DATA SHEETS AND CHAIN-OF-CUSTODY FORMS SOIL BORINGS

POLYCHLORINATED BIPHENYLS MODIFIED EPA METHOD 8080

Project: McGranahan 4.0 Lab ID: 23097

Sample SB5-5A-I Date

Location: 10.5 - 11.0' Collected: 03/22/89

Sample Date

Number: <u>24662</u> Analyzed: <u>04/06/89</u>

Aroclor Type	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
1016	< 0.1	0.1
1221	< 0.2	0.2
1232	< 0.1	0.1
1242	< 0.1	0.1
1248	< 0.1	0.1
1254	< 0.1	0.1
1260	< 0.1	0.1

Surrogate Recovery: 79%

Comments: 1:2 dilution used in analysis due to matrix interference.

Analyst: Reviewed By: Callow Date: 04/07/89

Laboratory Director:

J. M. Bartel

<u>McLaren</u>

HSL VOLATILE ORGANICS EPA METHOD 8240

Project: McGranahan 4.0 Lab ID: 23098

Sample SB5-5A-I Date

Location: 10.5 - 11.0' Sampled: 03/22/89

Sample Date

Number: <u>24662</u> Analyzed: <u>04/03/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Chloromethane	< 1000	1000.
Bromomethane	< 1000	1000.
Vinyl Chloride	< 1000	1000.
Chloroethane	< 1000	1000.
Methylene Chloride	< 2500	2500.
Acetone	< 3800	3800.
Carbon Disulfide	< 500	500.
1,1-Dichloroethene	< 500	500.
1,1-Dichloroethane	< 500	500.
1,2-Dichloroethene(cis/trans) < 500	500.
Chloroform	< 500	500.
1,2-Dichloroethane	< 500	500.
2-Butanone	< 2500	2500.
1,1,1,-Trichloroethane	< 500	500.
Carbon Tetrachloride	< 500	500.
Bromodichloromethane	< 500	500.
1,2-Dichloropropane	< 500	500.
Trans-1,3-Dichloropropene	< 500	500.
Trichloroethene	< 500	500.
Benzene	< 500	500.
1,1,2-Trichloroethane	< 500	500.
Dibromochloromethane	< 500	500.
Cis-1,3-Dichloropropene	< 500	500.
Bromoform	< 500	500.
4-Methyl-2-pentanone	< 2500	2500.
2-Hexanone	< 2500	2500.
1,1,2,2-Tetrachloroethane	< 500	500.
Tetrachloroethylene	< 1000	1000.
Toluene	< 500	500.
Chlorobenzene	< 500 ·	500.
Ethyl Benzene	< 500	500.
Styrene	< 500	500.
Total Xylene	< 500	500.
Freon 113	< 1400	1400.
	. A	

Analyst: <u>X. Badal</u> K. Badal

Reviewed By:

Date: 04/04/89

Laboratory Director:

McLaren

Lab ID: 23098

GCMS 8240 SURROGATE % RECOVERY

Compounds	% Recovery	Soil Matrix
S1 = D4-1,2-Dichloroethane	108	70-121
S2 = D8-Toluene	105	81-117
S3 = 4-Bromofluorobenzene	113	74-121

Comments:



SEMI-VOLATILE ORGANICS EPA METHOD 8270

Project: McGranahan 4.0 Lab ID: 23099

Sample SB5-5A-I Date

Location: 10.5 - 11.0' Collected: 03/22/89

Sample Data

Number: <u>24662</u> Analyzed: <u>04/11/89</u>

	Analyte	Reporting
COMPOUND	Concentration	Limit
	ug/kg	ug/kg
•	(ppb)	(ppb)
Phenol	< 33000	33000.
Bis(2-chloroethyl)ether	< 33000	33000.
2-Chlorophenol	< 33000	33000.
1,3-Dichlorobenzene	< 33000	33000.
1,4-Dichlorobenzene	< 33000	33000.
Benzyl alcohol	< 33000	33000.
2-Methylphenol	< 33000	33000.
1,2-Dichlorobenzene	< 33000	33000.
Bis(2-chloroisopropyl)ether	< 33000	33000.
4-Methylphenol	< 33000	33000.
N-Nitrosodi-n-propylamine	< 33000	33000.
Hexachloroethane	< 33000	33000.
Nitrobenzene	< 33000	33000.
Isophorone	< 33000	33000.
2,4-Dimethylphenol	< 33000	33000.
1,2,4-Trichlorobenzene	< 33000	33000.
2-Nitrophenol	< 33000	33000.
Benzoic acid	< 160000	160000.
Bis (2-chloroethoxy) methane	< 33000	33000.
2,4-Dichlorophenol	< 33000	33000.
Naphthalene	< 33000	33000.
4-Chloroaniline	< 33000	33000.
Hexachlorobutadiene	< 33000	33000.
4-Chloro-3-methlyphenol	< 33000	33000.
2-Methylnaphthalene	< 33000	33000.
Hexachlorocyclopentadiene	< 33000	33000.
2,4,6-Trichlorophenol	< 33000	33000.
2,4,5-Trichlorophenol	< 160000	160000.
2-Chloronaphthalene	< 33000	33000.
3-Nitroaniline	< 160000	160000.
Dimethylphthalate	< 33000	33000.
2,6-Dinitrotoluene	< 33000	33000.
Acenaphthylene	< 33000	33000.
2-Nitroaniline	< 160000	160000.
Acenaphthene	< 33000	33000.
2,4-Dinitrophenol	< 160000	160000.
4-Nitrophenol	< 160000	160000.
2,4-Dinitrotoluene	< 33000	33000.
Dibenzofuran	< 33000	33000.

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Diethylphthalate	< 33000	33000.
4-Chlorophenyl phenyl ether	< 33000	33000.
Fluorene	< 33000	33000.
4-Nitroaniline	< 160000	160000.
4,6-Dinitro-2-methylphenol	< 160000	160000.
N-Nitrosodiphenylamine	< 33000	33000.
4-Bromophenyl phenyl ether	< 33000	33000.
Hexachlorobenzene	< 33000	33000.
Pentachlorophenol	< 160000	160000.
Phenanthrene	< 33000	33000.
Anthracene	< 33000	33000.
Butyl benzyl phthalate	< 33000	33000.
Fluoranthene	< 33000	33000.
Pyrene	< 33000	33000.
Di-n-butylphthalate	< 33000	33000.
3,3'-Dichlorobenzidine	< 66000	66000.
Benzo(a) anthracene	< 33000	33000.
Bis(2-ethylhexyl)phthalate	< 33000	33000.
Chrysene	< 33000	33000.
Di-n-octylphthalate	< 33000	33000.
Benzo(b) fluoranthene	< 33000	33000.
Benzo(k) fluoranthene	< 33000	33000.
Benzo(a) pyrene	< 33000	33000.
Indeno(1,2,3-c,d)pyrene	< 33000	33000.
Dibenz(a,h)anthracene	< 33000	33000.
Benzo(g,h,i)perylene	< 33000	33000.

Surrogates	% Recovery
2-Fluorophenol	*
Phenol d-6	*
Nitrobenzene-d5	*
2-Fluorobiphenyl	*
2,4,6-Tribromophenol	*
Terphenyl-d14	*

Comments: * Sample was diluted 1:100. Matrix was viscous and deeply colored. Soil matrix required a clean-up procedure.
All surrogates were diluted out. 2-Methylnaphthalene was present at 5770 ppb.

Analyst: R. J. James

Reviewed By >

S. Azimi-Galloway

Laboratory Director:

J. M. Bartell



Project: <u>McGranahan 4.0</u>

Lab ID: <u>23209</u>

Sample

SB7-5B-E

Location: 20.5 - 21.0'

Date Collected: 03/23/89

Sample

Number: <u>24684</u>

Date

Analyzed: <u>04/07/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
Soil (ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference 300. 50.

Comments: 1:10 dilution used in analysis.

Analyst: Reviewed By: Date: 04/10/89
F. Ramezanzadeh

Reviewed By: Date: 04/10/89

Laboratory Director:

J. M. Bartell

McLaren

Project: <u>McGranahan 4.0</u>

Lab ID: <u>23210</u>

Sample

SB7-5B-E

Location: 25.5 - 26.0'

Date Collected: 03/23/89

Sample

Number: <u>24685</u>

Date

Analyzed: <u>04/07/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm)

Total Concentration:
Standard Oil and Grease Reference 300. 50.

Comments: 1:10 dilution used for analysis.

Analyst: Kangul Reviewed By: Oate: 04/10/89
F. Bamezanzadeh
J. M. Hooh

Laboratory Director:

J. M. Bartel

Mc Mc

Project: McGranahan 4.0

Lab ID: 23211

Sample

SB7-5B-E

Date Collected: 03/23/89

Location: 30.5 - 31'

Date

Sample Number: <u>24686</u>

Analyzed: <u>04/07/89</u>

Analyte Concentration

Detection Limit

Soil

ug/g (maga)

ug/g (mqq)

Total Concentration:

Standard Oil and Grease Reference

70.

15.

Comments: 1:3 dilution used for analysis.

Reviewed By

Date: 04/10/89

zanzadeh

Laboratory Director:

Project: <u>McGranahan 4.0</u>

Lab ID: 23212

Sample

SB7-5B-E

Date

Location: 35.5 - 36'

Collected: 03/23/89

Sample

Number: 24687 Date

Analyzed: <u>04/07/89</u>

Analyte Concentration Detection

ug/g (maga) Limit ug/g (mqq)

Soil

Total Concentration:

Standard Oil and Grease Reference

170.

15.

Date: 04/10/89

Comments: 1:3 dilution used for analysis.

Reviewed By

Laboratory Director:

McLaren

Ramezanzadeh

Project: McGranahan 4.0

Lab ID: 23213

Sample

SB7-5B-E

Date

Location: 40.5 - 41'

Collected: <u>03/23/89</u>

Sample

Soil

Number: 24688 Date

Analyzed: <u>04/07/89</u>

Analyte

Detection

Concentration ug/g

Limit

(mqq)

ug/g (mqq)

Total Concentration:

Standard Oil and Grease Reference

200.

50.

Comments: 1:10 dilution used for analysis.

Reviewed By F. Ramezanzadeh

C Date: 04/10/89

Laboratory Director:



POLYCHLORINATED BIPHENYLS MODIFIED EPA METHOD 8080

Project: McGranahan 4.0 Lab ID: 23214

Sample SB7-5B-E Date

Location: 40.5 - 41.0' Collected: 03/23/89

Sample Date

Number: <u>24688</u> Analyzed: <u>04/06/89</u>

Aroclor Type	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
1016	< 0.1	0.1
1221	< 0.2	0.2
1232	< 0.1	0.1
1242	< 0.1	0.1
1248	< 0.1	0.1
1254	< 0.1	0.1
1260	< 0.1	0.1

Surrogate Recovery: 60% *

Comments: 1:2 dilution used in analysis.

* Low surrogate due to matrix interference.

Analyst J. M. Hoch Reviewed By: S. Azimi-Galloway

Laboratory Director:

J. M. Bartell

PESTICIDES MODIFIED EPA METHOD 8080

Project: McGranahan 4.0

Lab ID: 23214

Sample

SB7-5B-E

Date

Collected: <u>03/23/89</u>

Location: 40.5 - 41.0'

Date

Sample

Number: <u>24688</u>

Analyzed:

04/06/89

COMPOUND	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
Alpha-BHC	< 0.01	0.01
Gamma-BHC	4 0 03	0.01
Delta-BHC	< 0.01	0.01
Beta-BHC	< 0.01	0.01
Heptachlor	< 0.01	0.01
Aldrin	< 0.01	0.01
Heptachlor Epoxide	< 0.01	0.01
Endosulfan I	< 0.01	0.01
4,4'-DDE	< 0.01	0.01
Dieldrin	< 0.01	0.01
Endrin	< 0.01	0.01
4,4'-DDD	< 0.01	0.01
Endosulfan II	< 0.01	0.01
4,4'-DDT	< 0.01	0.01
Endrin Aldehyde	< 0.01	0.01
Endosulfan Sulfate	< 0.01	0.01
Toxapene	< 0.2	0.2
Chlordane	< 0.04	0.04

Surrogate Recovery: 60% *

Comments:

1:2 dilution used for analysis.

* Low surrogate due to matrix interference.

(Reviewed By:

S. Azimi-Gallowa

Laboratory Director:

HSL VOLATILE ORGANICS EPA METHOD 8240

Project: <u>McGranahan 4.0</u> Lab ID: 23215

Sample SB7-5B-E Date

Location: 40.5 - 41' Sampled: 03/23/89

Sample Date

Number: <u>24688</u> Analyzed: <u>04/05/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Chloromethane	< 1000	1000.
Bromomethane	< 1000	1000.
Vinyl Chloride	< 1000	1000.
Chloroethane	< 1000	1000.
Methylene Chloride	4600.	2500.
Acetone	< 2500	4300.
Carbon Disulfide	< 500	500.
1,1-Dichloroethene	< 500	500.
1,1-Dichloroethane	< 500	500.
1,2-Dichloroethene(cis/trans		500.
Chloroform	< 500	500.
1,2-Dichloroethane	< 500	500.
2-Butanone	< 2500	2500.
1,1,1,-Trichloroethane	< 500	500.
Carbon Tetrachloride	< 500	500.
Bromodichloromethane	< 500	500.
1,2-Dichloropropane	< 500	500.
Trans-1,3-Dichloropropene	< 500	500.
Trichloroethene	< 500	500.
Benzene	< 500	500.
1,1,2-Trichloroethane	< 500	500.
Dibromochloromethane	< 500	500.
Cis-1,3-Dichloropropene	< 500	500.
Bromoform	< 500	500.
4-Methyl-2-pentanone	< 2500	2500.
2-Hexanone	< 2500	2500.
1,1,2,2-Tetrachloroethane	< 500	500.
Tetrachloroethylene	< 1000	1000.
Toluene	< 500	500.
Chlorobenzene	< 500	500.
Ethyl Benzene	< 500	500.
Styrene	< 500	500.
Total Xylene	< 500	500.
Freon 113	900	500.

Analyst: 2. Badal Reviewed By: Date: 04/06/89

Laboratory Director:

Lab ID: 23215

GCMS 8240 SURROGATE % RECOVERY

Compounds	% Recovery	Soil Matrix
S1 = D4-1,2-Dichloroethane	95	70-121
S2 = D8-Toluene	99	81-117
S3 = 4-Bromofluorobenzene	98	74-121

Comments:



SEMI-VOLATILE ORGANICS EPA METHOD 8270

Project: <u>McGranahan 4.0</u> Lab ID: <u>23216</u>

Sample SB7-5B-E Date

Location: 40.5 - 41' Collected: <u>03/23/89</u>

Sample

Data

Number: <u>24688</u> Analyzed: <u>04/11/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Phenol	< 330	330.
Bis(2-chloroethyl)ether	< 330	330.
2-Chlorophenol	< 330	330.
1,3-Dichlorobenzene	< 330	330.
1,4-Dichlorobenzene	< 330	330.
Benzyl alcohol	< 330	330.
2-Methylphenol	< 330	330.
1,2-Dichlorobenzene	< 330	330.
Bis(2-chloroisopropyl)ether	< 330	330.
4-Methylphenol	< 330	330.
N-Nitrosodi-n-propylamine	< 330	330.
Hexachloroethane	< 330	330.
Nitrobenzene	< 330	330.
Isophorone	< 330	330.
2,4-Dimethylphenol	< 330	330.
1,2,4-Trichlorobenzene	< 330	330.
2-Nitrophenol	< 330	330.
Benzoic acid	< 1600	1600.
Bis(2-chloroethoxy) methane	< 330	330.
2,4-Dichlorophenol	< 330	330.
Naphthalene	< 330	330.
4-Chloroaniline	< 330	330.
Hexachlorobutadiene	< 330	330.
4-Chloro-3-methlyphenol	< 330	330.
2-Methylnaphthalene	1600.	330.
Hexachlorocyclopentadiene	< 330	330.
2,4,6-Trichlorophenol	< 330	330.
2,4,5-Trichlorophenol	< 1600	1600.
2-Chloronaphthalene	< 330	330.
3-Nitroaniline	< 1600	1600.
Dimethylphthalate	< 330	330.
2,6-Dinitrotoluene	< 330	330.
Acenaphthylene	< 330	330.
2-Nitroaniline	< 1600	1600.
Acenaphthene	< 330	330.
2,4-Dinitrophenol	< 1600	1600.
4-Nitrophenol	< 1600	1600.
2,4-Dinitrotoluene	< 330	330.
Dibenzofuran	< 330	330.

page 1

McLaren

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Diethylphthalate	< 330	330.
4-Chlorophenyl phenyl ether	< 330	330.
Fluorene	< 330	330.
4-Nitroaniline	< 1600	
4,6-Dinitro-2-methylphenol	< 1600	1600.
N-Nitrosodiphenylamine	< 330	330.
4-Bromophenyl phenyl ether	< 330	330.
Hexachlorobenzene	< 330	330.
Pentachlorophenol	< 1600	1600.
Phenanthrene	< 330	330.
Anthracene	< 330	330.
Butyl benzyl phthalate	< 330	330.
Fluoranthene	< 330	330.
Pyrene	< 330	330.
Di-n-butylphthalate	< 330	330.
3,3'-Dichlorobenzidine	< 660	660.
Benzo(a) anthracene	< 330	330.
Bis(2-ethylhexyl)phthalate	< 330	330.
Chrysene	< 330	330.
Di-n-octylphthalate	< 330	330.
Benzo(b) fluoranthene	< 330	330.
Benzo(k) fluoranthene	< 330	330.
Benzo(a)pyrene	< 330	330.
Indeno(1,2,3-c,d)pyrene	< 330	330.
Dibenz(a,h)anthracene	< 330	330.
Benzo(g,h,i)perylene	< 330	330.

Surrogates	<pre>% Recovery</pre>
2-Fluorophenol	73
Phenol d-6	58
Nitrobenzene-d5	78
2-Fluorobiphenyl	74
2,4,6-Tribromophenol	60
Terphenyl-d14	64

Comments:

Analyst:

_Reviewed By:

Date: 04/12/89

S. Azimi-Gallo

Laboratory Director;

J. M. Bartell



dames

Project: McGranahan 4.0

Lab ID: <u>23217</u>

Sample

SB7-5B-E

Date

Location: 50.5 - 51 0'

Collected: <u>03/23/89</u>

Sample

Date

Number: <u>24689</u>

Analyzed: <u>04/07/89</u>

<u>soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: Reviewed By J. M. Hoon Date: 04/10/89

Laboratory Director:

J. M. Bartel

McLaren

METAL ANALYSIS

Project: McGranahan & Carlson Lab ID: 21858

Sample Date

Location: B3 7.5-8' (58-8) \mathcal{B} Sampled: 01/27/89

Sample Date

Number: <u>23815</u> Analyzed: <u>03/06/89</u>

	METAL (SYMBOL)/EPA METHOD	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
	Antimony (Sb)/7040	Not Requested	0.5
*	Arsenic (As)/7061	Not Requested	0.05
	Barium (Ba)/7080	11.	1.
	Beryllium (Be)/7090	Not Requested	0.5
	Cadmium (Cd)/7130	Not Requested	0.01
	Chromium (Cr)/7190	Not Requested	0.02
	Cobalt (Co)/7200	Not Requested	0.08
	Copper (Cu)/7210	< 0.09	0.09
	Lead (Pb)/7420	2.	0.05
**	Mercury (Hg)/7470	Not Requested	0.002
	Molybdenum (Mo)/7480	Not Requested	1.
	Nickel (Ni)/7520	Not Requested	0.2
*	Selenium (Se)/7741	Not Requested	0.01
	Silver (Ag)/7760	Not Requested	0.05
	Thallium (T1)/7840	Not Requested	1.
	Vanadium (V)/7910	Not Requested	0.5
	Zinc (Zn)/7950	Not Requested	0.08
	Hex. Chromium (CrVI)/7195	Not Requested	0.05
	Titanium (Ti)/283.1	Not Requested	0.6
	Organic Lead (Pb)/DHS	Not Requested	0.05
	Magnesium (Mg)/7450	Not Requested	0.07
	Calcium (Ca)/7140	Not Requested	0.1

* Hydride generation method

** Cold vapor method

Comments:

Analyst: Ramezanzadeh

Reviewed By:

S. Azimi-Galloway

Date: 03/06/89

Laboratory Director:

Bartell

McLaren Environmental Engineering

SEMI-VOLATILE ORGANICS EPA METHOD 8270

Project: McGranahan & Carlson Lab ID: 21286

Sample Date

Location: B3 20.5-21' Collected: 01/27/89

Sample Data

Number: <u>23819</u> Analyzed: <u>02/28/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Phenol	< 330	330.
Bis(2-chloroethyl)ether	< 330	330.
2-Chlorophenol	< 330	330.
1,3-Dichlorobenzene	< 330	330.
1,4-Dichlorobenzene	< 330	330.
Benzyl alcohol	< 330	330.
2-Methylphenol	< 330	330.
1,2-Dichlorobenzene	< 330	330.
Bis(2-chloroisopropyl)ether	< 330	330.
4-Methylphenol	< 330	330.
N-Nitrosodi-n-propylamine	< 330	330.
Hexachloroethane	< 330	330.
Nitrobenzene	< 330	330.
Isophorone	< 330	330.
2,4-Dimethylphenol	< 330	330.
1,2,4-Trichlorobenzene	< 330	330.
2-Nitrophenol	< 330	330.
Benzoic acid	< 1600	1600.
Bis(2-chloroethoxy) methane	< 330	330.
2,4-Dichlorophenol	< 330	330.
Naphthalene	< 330	330.
4-Chloroaniline	< 330	330.
Hexachlorobutadiene	< 330	330.
4-Chloro-3-methlyphenol	< 330	330.
2-Methylnaphthalene	5700.	330.
Hexachlorocyclopentadiene	< 330	330.
2,4,6-Trichlorophenol	< 330	330.
2,4,5-Trichlorophenol	< 1600	1600.
2-Chloronaphthalene	< 330	330.
3-Nitroaniline	< 1600	1600.
Dimethylphthalate	< 330	330.
2,6-Dinitrotoluene	< 330	330.
Acenaphthylene	< 330	330.
2-Nitroaniline	< 1600	1600.
Acenaphthene	< 330	330.
2,4-Dinitrophenol	< 1600	1600.
4-Nitrophenol	< 1600	1600.
2,4-Dinitrotoluene	< 330	330.
Dibenzofuran	< 330	330.



Lab ID: 21286

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Diethylphthalate	< 330	330.
4-Chlorophenyl phenyl ether	< 330	330.
Fluorene	< 330	330.
4-Nitroaniline	< 1600	1600.
4,6-Dinitro-2-methylphenol	< 1600	1600.
N-Nitrosodiphenylamine	< 330	330.
4-Bromophenyl phenyl ether	< 330	330.
Hexachlorobenzene	< 330	330.
Pentachlorophenol	< 1600	1600.
Phenanthrene	< 330	330.
Anthracene	< 330	330.
Butyl benzyl phthalate	< 330	330.
Fluoranthene	< 330	330.
- Pyrene	< 330	330.
Di-n-butylphthalate	< 330	330.
3,3'-Dichlorobenzidine	< 660	660.
Benzo(a)anthracene	< 330	330.
Bis(2-ethylhexyl)phthalate	< 330	330.
Chrysene	< 330	330.
Di-n-octylphthalate	< 330	330.
Benzo(b) fluoranthene	< 330	330.
Benzo(k) fluoranthene	< 330	330.
Benzo(a)pyrene	< 330	330.
Indeno(1,2,3-c,d)pyrene	< 330	330.
Dibenz(a,h)anthracene	< 330	330.
Benzo(g,h,i)perylene	< 330	330.

surrogates	* Recovery
2-Fluorophenol	28
Phenol d-6	50
Nitrobenzene-d5	28
2-Fluorobiphenyl	. 35
2,4,6-Tribromophenol	28
Terphenyl-d14	23

Comments:

Analyst: //woney

_Reviewed By:

Date: 03/07/89

Laboratory Director:

McLaren Environmental Engineering

HSL VOLATILE ORGANICS EPA METHOD 8240

Project: <u>McGranahan & Carlson</u> Lab ID: 21285

Sample Date

Location: <u>B3 20.5-21'</u> Sampled: 01/27/89

Sample Date

Number: Analyzed: <u>02/17/89</u> 23819

COMPOUND	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
Chloromethane	< 4	4.
Bromomethane	< 4	4.
Vinyl Chloride	< 4	4.
Chloroethane	< 4	4.
Methylene Chloride	< 10	10.
Acetone	< 10	10.
Carbon Disulfide	< 2	2.
1,1-Dichloroethene	< 2	2.
1,1-Dichloroethane	< 2	2.
1,2-Dichloroethene(cis/tran	ns) < 2	2.
Chloroform	< 2	2.
1,2-Dichloroethane	< 2	2.
2-Butanone	< 10	10.
1,1,1,-Trichloroethane	< 2	2.
Carbon Tetrachloride	< 2	2.
Bromodichloromethane	< 2	2.
1,2-Dichloropropane	< 2	2.
Trans-1,3-Dichloropropene	< 2	2.
Trichloroethene	< 2	2.
Benzene	< 2	2.
1,1,2-Trichloroethane	< 2	2.
Dibromochloromethane	< 2	2.
Cis-1,3-Dichloropropene	< 2	2.
Bromoform	< 2	2.
4-Methyl-2-pentanone	< 10.	10.
2-Hexanone	< 10	10.
1,1,2,2-Tetrachloroethane	< 2	2.
Tetrachloroethylene	< 4	4.
Toluene	< 2	2.
Chlorobenzene	< 2	2.
Ethyl Benzene	< 2	2.
Styrene	< 2	2.
Total Xylene	< 2	2.
	$\rightarrow 00$	

Reviewed By

Date: 02/24/89

Laboratory Director:

McLaren Environmental Engineering

Lab ID: 21285

GCMS 8240 SURROGATE % RECOVERY

Compounds	% Recovery	Soil Matrix
S1 = D4-1,2-Dichloroethane	124	70-121
S2 = D8-Toluene	100	81-117
S3 = 4-Bromofluorobenzene	109	74-121

Comments: 1:2 dilution used in analysis.



PESTICIDES MODIFIED EPA METHOD 8080

Project: MC & C Lab ID: 21287

Sample Date

Location: <u>B3 20.5-21'</u> Collected: <u>01/27/89</u>

Sample Date

Number: <u>23819</u> Analyzed: <u>03/02/89</u>

COMPOUND	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
Alpha-BHC	< 0.02	0.02
Gamma-BHC	< 0.02	0.02
Delta-BHC	< 0.02	0.02
Beta-BHC	< 0.02	0.02
Heptachlor	< 0.02	0.02
Aldrin	< 0.02	0.02
Heptachlor Epoxide	< 0.02	0.02
Endosulfan I	< 0.02	0.02
4,4'-DDE	< 0.02	0.02
Dieldrin	< 0.02	0.02
Endrin	< 0.02	0.02
4,4'-DDD	< 0.02	0.02
Endosulfan II	< 0.02	0.02
4,4'-DDT	< 0.02	0.02
Endrin Aldehyde	< 0.02	0.02
Endosulfan Sulfate	< 0.02	0.02
Toxapene	< 0.5	0.5
Chlordane	< 0.1	0.1

Surrogate Recovery: 45%

Comments: 1:5 dilution used due to matrix interference.

Analyst: E. Jour Ser' Reviewed By: S. Azimi-Galloway Date: 03/09/89

Tabanatan Dinasta

Laboratory Director:

McLaren Environmental Engineering

POLYCHLORINATED BIPHENYLS MODIFIED EPA METHOD 8080

Project: MC & C Lab ID: 21287

Sample Date

Location: B3 20.5-21' Collected: <u>01/27/89</u>

Sample Date

Number: Analyzed: _03/02/89 23819

Aroclor Type	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
1016	< 0.2	0.2
1221	< 0.5	0.5
1232	< 0.2	0.2
1242	< 0.2	0.2
1248	< 0.2	0.2
1254	< 0.2	0.2
1260	< 0.2	0.2

Surrogate Recovery: 45%

Comments: 1:5 dilution used due to matrix interference.

Analyst: E. Dow G F: Reviewed By:
J. M. Hoch

Laboratory Director:

McLaren Environmental Engineering

Project: <u>McGranahan 4.0</u>

Location: 15.5 - 16.0'

Lab ID: _23100

Sample

SB5-5A-I

Date

Collected: 03/22/89

Sample

Date

Number: <u>24663</u>

Analyzed: <u>04/06/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

Total Concentration:
Standard Oil and Grease Reference 10. 5.

Comments:

F. Ramezanzadeh

Reviewed By

Da Da

Date: 04/07/89

Laboratory Director:

. M. Bartell

Project: McGranahan 4.0

Lab ID: <u>23101</u>

Sample

SB5-5A-I

Date

Location: 20.5 - 21.0'

Collected: 03/22/89

Sample Number:

_24664

Date

Analyzed: <u>04/06/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: Reviewed By: Date: 04/07

F. Ramezanzadeh

Reviewed By: Date: 04/07

Laboratory Director:

J. M. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: _23102

Sample

SB5-5A-I

Date

Location: 25.5 - 26.0'

Collected: 03/22/89

Sample

Date

Number: <u>24665</u>

Analyzed: <u>04/06/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

F. Ramezanzadeh

Reviewed By

Date: 04/07/89

Laboratory Director:

J. M. Bartelll

٠

Project: <u>McGranahan 4.0</u>

Lab ID: 23103

Sample

SB5-5A-I

Date

Location: 30.5 - 31.0'

Collected: 03/22/89

Sample

Number:

24666

Date

Analyzed: <u>04/06/89</u>

Soil	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration:		5

Comments:

Reviewed By

F. Ramezanzadeh

Laboratory Director:

Project: <u>McGranahan 4.0</u>

Lab ID: 23104

Sample

SB5-5A-I

Date

Location: 35.5 - 36.0'

Collected: 03/22/89

Sample

Number: <u>24667</u>

Date

Analyzed: <u>04/06/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst:

Reviewed By:

M Hock

Date: 04/07/89

F. Ramezanzadeh

Laboratory Director:

J. M. Bartell

POLYCHLORINATED BIPHENYLS MODIFIED EPA METHOD 8080

Project: <u>McGranahan 4.0</u> Lab ID: 23107

Sample SB5-5A-I Sample SB5-5A-I Location: 50.5 - 51.0' Date

Collected: <u>03/22/89</u>

Sample Date

Number: 24669 Analyzed: <u>04/03/89</u>

Aroclor Type	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
1016	< 0.05	0.05
1221	< 0.10	0.10
1232	< 0.05	0.05
1242	< 0.05	0.05
1248	< 0.05	0.05
1254	< 0.05	0.05
1260	< 0.05	0.05

Surrogate Recovery: 77%

Comments:

_Reviewed By+ S. Azimi-Galloway

Laboratory Director:

HSL VOLATILE ORGANICS EPA METHOD 8240

Project: McGranahan 4.0 Lab ID: 23108

Sample SB5-5A-I Date

Location: 50.5 - 51.0' Sampled: 03/22/89

Sample

Number: <u>24669</u> Analyzed: <u>04/04/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Chloromethane	< 1000	1000.
Bromomethane	< 1000	1000.
Vinyl Chloride	< 1000	1000.
Chloroethane	< 1000	1000.
Methylene Chloride	< 2500	2500.
Acetone	< 2500	2500.
Carbon Disulfide	< 500	500.
1,1-Dichloroethene	< 500	500.
1,1-Dichloroethane	< 500	500.
1,2-Dichloroethene(cis/trans)	< 500	500.
Chloroform	< 500	500.
1,2-Dichloroethane	< 500	500.
2-Butanone	< 2500	2500.
1,1,1,-Trichloroethane	< 500	500.
Carbon Tetrachloride	< 500	500.
Bromodichloromethane	< 500	500.
1,2-Dichloropropane	< 500	500.
Trans-1,3-Dichloropropene	< 500	500.
Trichloroethene	< 500	500.
Benzene	< 500	500.
1,1,2-Trichloroethane	< 500	500.
Dibromochloromethane	< 500	500.
Cis-1,3-Dichloropropene	< 500	500.
Bromoform	< 500	500.
4-Methyl-2-pentanone	< 2500	2500.
2-Hexanone	< 2500	2500.
1,1,2,2-Tetrachloroethane	< 500	500.
Tetrachloroethylene	< 1000	1000.
Toluene	< 500	500.
Chlorobenzene	< 500	500.
Ethyl Benzene	< 500	500.
Styrene	< 500	500.
Total Xylene	< 500	500.
Freon 113	< 500	500.
•	12/ - 6	

Analyst: 2. Badel Reviewed By: Date: 04/04/89

K. Badal Reviewed By: Date: 04/04/89

Laboratory Director:

J. M Barte

McLarer

Lab ID: 23108

GCMS 8240 SURROGATE % RECOVERY

Compounds	% Recovery	Soil Matrix
S1 = D4-1,2-Dichloroethane	88	70-121
S2 = D8-Toluene	97	81-117
S3 =- 4-Bromofluorobenzene	97	74-121

Comments:



SEMI-VOLATILE ORGANICS EPA METHOD 8270

Project: <u>McGranahan 4.0</u> Lab ID: <u>23109</u>

Date

Sample SB5-5A-I Location: 50.5 - 51.0' Collected: 03/22/89

Sample Data

Number: 24669 Analyzed: <u>04/11/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Phenol	< 330	330.
Bis(2-chloroethyl)ether	< 330	330.
2-Chlorophenol	< 330	330.
1,3-Dichlorobenzene	< 330	330.
1,4-Dichlorobenzene	< 330	330.
Benzyl alcohol	< 330	330.
2-Methylphenol	< 330	330.
1,2-Dichlorobenzene	< 330	330.
Bis(2-chloroisopropyl)ether	< 330	330.
4-Methylphenol	< 330	330.
N-Nitrosodi-n-propylamine	< 330	330.
Hexachloroethane	< 330	330.
Nitrobenzene	< 330	330.
Isophorone	< 330	330.
2,4-Dimethylphenol	< 330	330.
1,2,4-Trichlorobenzene	< 330	330.
2-Nitrophenol	< 330	330.
Benzoic acid	< 1600	1600.
Bis(2-chloroethoxy)methane	< 330	330.
2,4-Dichlorophenol	< 330	330.
Naphthalene	< 330	330.
4-Chloroaniline	< 330	330.
Hexachlorobutadiene	< 330	330.
4-Chloro-3-methlyphenol	< 330	330.
2-Methylnaphthalene	< 330	330.
Hexachlorocyclopentadiene	< 330	330.
2,4,6-Trichlorophenol	< 330	330.
2,4,5-Trichlorophenol	< 1600	1600.
2-Chloronaphthalene	< 330	330.
3-Nitroaniline	< 1600	1600.
Dimethylphthalate	< 330	330.
2,6-Dinitrotoluene	< 330	330.
Acenaphthylene	< 330	330.
2-Nitroaniline	< 1600	1600.
Acenaphthene	< 330	330.
2,4-Dinitrophenol	< 1600	1600.
4-Nitrophenol	< 1600	1600.
2,4-Dinitrotoluene	< 330	330.
🛓 🛓 Dibenzofuran	< 330	330.
page 1		
₩ McLaren		
-		

SEMI-VOLATILE ORGANICS EPA METHOD 8270

Project: <u>McGranahan 4.0</u> Lab ID: 23109

Sample SB5-5A-I Date

Location: 50.5 - 51.0' Collected: 03/22/89

Sample

Data Number: 24669 Analyzed: <u>04/11/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Phenol	< 330	330.
Bis(2-chloroethyl)ether	< 330	330.
2-Chlorophenol	< 330	330.
1,3-Dichlorobenzene	< 330	330.
1,4-Dichlorobenzene	< 330	330.
Benzyl alcohol	< 330	330.
2-Methylphenol	< 330	330.
1,2-Dichlorobenzene	< 330	330.
Bis(2-chloroisopropyl)ether	< 330	330.
4-Methylphenol	< 330	330.
N-Nitrosodi-n-propylamine	< 330	330.
Hexachloroethane	< 330	330.
Nitrobenzene	< 330	330.
Isophorone	< 330	330.
2,4-Dimethylphenol	< 330	330.
1,2,4-Trichlorobenzene	< 330	330.
2-Nitrophenol Benzoic acid	< 330	330.
	< 1600	1600.
Bis(2-chloroethoxy) methane	< 330	330.
2,4-Dichlorophenol Naphthalene	< 330	330.
4-Chloroaniline	< 330	330.
Hexachlorobutadiene	< 330	330.
	< 330	330.
4-Chloro-3-methlyphenol	< 330	330.
2-Methylnaphthalene	< 330	330.
Hexachlorocyclopentadiene	< 330	330.
2,4,6-Trichlorophenol 2,4,5-Trichlorophenol	< 330	330.
2-Chloronaphthalene	< 1600	1600.
3-Nitroaniline	< 330	330.
Dimethylphthalate	< 1600	1600.
2,6-Dinitrotoluene	< 330 < 330	330.
Acenaphthylene		330.
2-Nitroaniline	< 330	330.
Acenaphthene	< 1600	1600.
2,4-Dinitrophenol	< 330	330.
4-Nitrophenol	< 1600	1600.
2,4-Dinitrotoluene	< 1600	1600.
<u> </u>	< 330	330.
	< 330	330.

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Diethylphthalate	< 330	330.
4-Chlorophenyl phenyl ether	< 330	330.
Fluorene	< 330	330.
4-Nitroaniline	< 1600	1600.
4,6-Dinitro-2-methylphenol	< 1600	1600.
N-Nitrosodiphenylamine	< 330	330.
4-Bromophenyl phenyl ether	< 330	330.
Hexachlorobenzene	< 330	330.
Pentachlorophenol	< 1600	1600.
Phenanthrene	< 330	330.
Anthracene	< 330	330.
Butyl benzyl phthalate	< 330	330.
Fluoranthene	< 330	330.
Pyrene	< 330	330.
Di-n-butylphthalate	< 330	330.
3,3'-Dichlorobenzidine	< 660	660.
Benzo(a)anthracene	< 330	330.
Bis(2-ethylhexyl)phthalate	< 330	330.
Chrysene	< 330	330.
Di-n-octylphthalate	< 330	330.
Benzo(b) fluoranthene	< 330	330.
Benzo(k)fluoranthene	< 330	330.
Benzo(a)pyrene	< 330	330.
Indeno(1,2,3-c,d)pyrene	< 330	330.
Dibenz(a,h)anthracene	< 330	330.
Benzo(g,h,i)perylene	< 330	330.

Surrogates	* Kecovei	
2-Fluorophenol	70	
Phenol d-6	57	
Nitrobenzene-d5	71 ·	
2-Fluorobiphenyl	88	
2,4,6-Tribromophenol	54	
Terphenyl-d14	61	

Comments:

Analyst:

_Reviewed By

Date: 04/12

S. Azimi-Galloway

Laboratory Director;

J. M. Bartell



page 2

Project: McGranahan 4.0

Lab ID: 23110

Sample

SB5-5A-I

Date

Location: 60.5 - 61.0'

Collected: <u>03/22/89</u>

Sample

Date

Number: 24670

Analyzed: <u>04/06/89</u>

Soil	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	· 5.

Comments:

Ramezanzadeh

Reviewed By

. M. Hoch

Laboratory Director:



Project: <u>McGranahan 4.0</u>

Lab ID: 23111

Sample

SB6-5B-I

Date

Location: 5.5 - 6.0'

Collected: 03/22/89

Sample

Number: 24671 Date

Analyzed: <u>04/06/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By:

Date: 04/07/89

Ramezanzadeh

Laboratory Director

M. Hock

Project: McGranahan 4.0

Lab ID: <u>23115</u>

Sample

SB6-5B-I

Location: 10.5 - 11.0'

Date Collected: 03/22/89

Sample

Number: <u>24672</u>

Date

Analyzed: <u>04/06/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: Reviewed By: Date: 04/07/89

F. Ramezanzadeh

J. M. Hoch

Laboratory Director:

J. M. Barte)

Project: <u>McGranahan 4.0</u>

Lab ID: <u>23116</u>

Sample

SB6-5B-I

Location: 15.5 - 16.0'

Date Collected: 03/22/89

Sample

Number: <u>24673</u>

Date

Analyzed: <u>04/06/89</u>

Analyte Detection Concentration Limit

ug/g ug/g
(ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst: J.K. J. J.

 $\widehat{\ }$ Reviewed By

J. M. Hock

(Date: 04/07/89

F. Ramezanzadeh

Laboratory Director:

J. M. Bartell

Project: McGranahan 4.0

Lab ID: 23117

Sample

Date

Sample SB6-5B-I Location: 20.5 - 21.0'

Collected: 03/22/89

Sample

Date

Number: 24674

Analyzed: <u>04/06/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Ramezanzadeh

Reviewed By J. M. Hock

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 23118

Sample

SB6-5B-I

Date

Location: 25.5 - 26.0'

Collected: 03/22/89

Sample

Date

Number: <u>24675</u> Analyzed: <u>04/06/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (mqq) (maga) Total Concentration: Standard Oil and Grease Reference < 5 5.

Comments:

Reviewed By

Date: 04/07/89

anzadeh

Laboratory Director;



Project: McGranahan 4.0

Lab ID: <u>23119</u>

Sample

SB6-5B-I

Date

Location: 30.5 - 31.0'

Collected: 03/22/89

Sample

Number: 24676 Date

Analyzed: <u>04/06/89</u>

Soil	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By

M Date: 04/07/89

Ramezanzadeh

Laboratory Director;

Project: <u>McGranahan 4.0</u>

Lab ID: <u>23120</u>

Sample

SB6-5B-I

Date

Location: 35.5 - 36.0'

Collected: <u>03/22/89</u>

Sample

Number: 24677 Date

Analyzed: <u>04/06/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By

Date: <u>04/07/89</u>

Ramezanzadeh

Laboratory Director:

J. M. Hoch

Project: <u>McGranahan 4.0</u>

Lab ID: <u>23121</u>

Sample

SB6-5B-I

Location: 40.5 - 41.0'

Date Collected: 03/22/89

Sample

Number: <u>24678</u>

Date

Analyzed: <u>04/06/89</u>

Soil	Analyte Concentration ug/g <u>(ppm)</u>	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	5.	5.

Comments:

Analyst:

Reviewed By:

J. M. Hoch

Date: 04/07/89

F. Ramezanzadeh

Laboratory Director:

J. M. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: _23122

Sample

SB6-5B-I

Date

Location: 50.5 - 51.0'

Collected: <u>03/22/89</u>

Sample

Number: <u>24679</u>

Date

Analyzed: <u>04/06/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

Total Concentration:
Standard Oil and Grease Reference < 5 5.

Comments:

Analyst: Kangan

Reviewed By

Date: 04/07/89

F. Ramezanzadeh

Laboratory Director:

J. M. Hock

. M. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: 23126

Sample

SB6-5B-I

Date

Location: 60.5 - 61.0'

Collected: <u>03/22/89</u>

Sample

Number: <u>24680</u>

Date

Analyzed: <u>04/06/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By

Date: 04/07/89

zanzadeh

Laboratory Director:

Project: <u>McGranahan 4.0</u>

Lab ID: <u>23127</u>

Sample

SB5-5A-I

Location: 5.5 - 6.0'

Date Collected: 03/22/89

Sample

Number: <u>24661</u>

Date

Analyzed: _04/06/89

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst:

<u>---</u>'

Reviewed By

Date: 04/07/89

F. Ranezanzadeh

Laboratory Director:

Bartell

<u>McL</u>

Project: McGranahan 4.0

Lab ID: <u>23128</u>

Sample

SB5-5A-I

Date

Location: 10.5 - 11.0'

Number:

1.0' Collected: 03/22/89

Sample

24662

Date

Analyzed: _04/06/89

Analyte Concentration Detection Limit

Soil

ug/g (ppm) ug/g

Total Concentration:

Standard Oil and Grease Reference

6400.

620.

Comments: 1:125 dilution used in analysis.

Analyst:

Reviewed By

 \sim

Date: 04/07/89

F. Ramezanzadeh

Laboratory Director:

T W Pant (1)

McLare McLare

Project: <u>McGranahan 4.0</u>

Lab ID: <u>23203</u>

Sample

SB7-5B-E

Location: 5.5 - 6.0'

Date Collected: 03/23/89

Sample

Number: 24681

Date

Analyzed: <u>04/07/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

Total Concentration:
Standard Oil and Grease Reference 1100. 250.

Comments: 1:50 dilution used in analysis.

Analyst: Kengda

_Reviewed By

L Date: 04/10/8

F. Ramazanzadeh

Laboratory Director:

J. M. Bartell

i i

Project: <u>McGranahan 4.0</u>

Lab ID: 23204

Sample

SB7-5B-E

Location: 10.5 - 11.0'

Collected: <u>03/23/89</u>

Sample

Number: 24682 Date

Date

Analyzed: <u>04/05/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (mqq) (mqq)

Total Concentration:

Standard Oil and Grease Reference

3500.

500.

Comments: 1:100 dilution used in analysis.

Reviewed By:

zanzadeh

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 23205

Sample

SB7-5B-E

Date

Location: 15.5 - 16.0'

Collected: <u>03/23/89</u>

Sample

Number: <u>24683</u>

Date

Analyzed: <u>04/07/89</u>

Soil

Analyte Concentration Detection

ug/g (mqq)

Limit ug/g

(mqq)

Total Concentration:

Standard Oil and Grease Reference

1100.

200.

Comments: 1:40 dilution used in analysis.

Reviewed By

Date: 04/10/89

Laboratory Director;

PESTICIDES MODIFIED EPA METHOD 8080

Project: McGranahan 4.0 Lab ID: 23206

SB7-\$B-E Sample Date

Collected: <u>03/23/89</u> Location: 10.5 - 16.0'

Sample Date

Number: 24683 Analyzed: 04/04/89

COMPOUND	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
Alpha-BHC	< 0.005	0.005
Gamma-BHC	< 0.005	0.005
Delta-BHC	< 0.005	0.005
Beta-BHC	< 0.005	0.005
Heptachlor	< 0.005	0.005
Aldrin	< 0.005	0.005
Heptachlor Epoxide	< 0.005	0.005
Endosulfan I	< 0.005	0.005
4,4'-DDE	< 0.005	0.005
Dieldrin	< 0.005	0.005
Endrin	′ < 0.005	0.005
4,4'-DDD	< 0.005	0.005
Endosulfan II	< 0.005	0.005
4,4'-DDT	< 0.005	0.005
Endrin Aldehyde	< 0.005	0.005
Endosulfan Sulfate	< 0.005	0.005
Toxapene	< 0.10	0.10
Chlordane	< 0.02	0.02

Surrogate Recovery: 107%

Comments:

Reviewed By S. Azimi-galloway

Laboratory Director:

POLYCHLORINATED BIPHENYLS MODIFIED EPA METHOD 8080

Project: McGranahan 4.0 Lab ID: 23206

Sample SB7-\$B-E Date

Location: 10.5 - 16.0' Collected: 03/23/89

*9*513

Sample Date

Number: 24683 Analyzed: 04/04/89

Aroclor Type	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
1016	< 0.05	0.05
1221	< 0.10	0.10
1232	< 0.05	0.05
1242	< 0.05	0.05
1248	< 0.05	0.05
1254	< 0.05	0.05
1260	< 0.05	0.05

Surrogate Recovery: 107%

Comments:

Analyst: Reviewed By: Quin fallown Date: 04/07/89

Laboratory Director:

J. Ŋ.

HSL VOLATILE ORGANICS EPA METHOD 8240

Project: McGranahan 4.0 Lab ID: 23207

Sample Date SB7-5B-E

Location: 15.5 - 16.0' Sampled: 03/23/89

Sample Date

Number: 24683 Analyzed: <u>04/04/89</u>

	Analyte	Reporting
201701717	Concentration	Limit
COMPOUND	ug/kg	ug/kg
	(ppb)	(ppb)
Chloromethane	< 1000	1000.
Bromomethane	< 1000	1000.
Vinyl Chloride	< 1000	1000.
Chloroethane	< 1000	1000.
Methylene Chloride	< 2500	2500.
Acetone	< 2500	2500.
Carbon Disulfide	< 500	500.
1,1-Dichloroethene	< 500	500.
1,1-Dichloroethane	< 500	500.
1,2-Dichloroethene(cis/trans) < 500	500.
Chloroform	< 500	500.
1,2-Dichloroethane	< 500	500.
2-Butanone	< 2500	2500.
1,1,1,-Trichloroethane	< 500	500.
Carbon Tetrachloride	< 500	500.
Bromodichloromethane	< 500	500.
1,2-Dichloropropane	< 500	500.
Trans-1,3-Dichloropropene	< 500	500.
Trichloroethene	< 500	500.
Benzene	< 500	500.
1,1,2-Trichloroethane	< 500	500.
Dibromochloromethane	< 500	500.
Cis-1,3-Dichloropropene	< 500	500.
Bromoform	< 500	500.
4-Methyl-2-pentanone	< 2500	2500.
2-Hexanone	< 2500	2500.
1,1,2,2-Tetrachloroethane	< 500	500.
Tetrachloroethylene	< 1000	1000.
Toluene	< 500	500.
Chlorobenzene	< 500	500.
Ethyl Benzene	< 500	500.
Styrene	< 500	500.
Total Xylene	< 500	500.
Freon 113	500	500.
	1 1 5 11 97	

_Reviewed By Date: 04/06/89

Laboratory Director:

Lab ID: 23207

GCMS 8240 SURROGATE % RECOVERY

Compounds	% Recovery	Soil Matrix
S1 = D4-1,2-Dichloroethane	86	70-121
S2 = D8-Toluene	96	81-117
S3 = 4-Bromofluorobenzene	121	74-121

Comments:



SEMI-VOLATILE ORGANICS EPA METHOD 8270

Project: McGranahan 4.0 Lab ID: 23208

Sample SB7-5B-E Date

Location: 15.5 - 16.0' Collected: 03/23/89

Sample Data

Number: <u>24683</u> Analyzed: <u>04/11/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Phenol	< 330	330.
Bis(2-chloroethyl)ether	< 330	330.
2-Chlorophenol	< 330	330.
1,3-Dichlorobenzene	< 330	330.
1,4-Dichlorobenzene	< 330	330.
Benzyl alcohol	< 330	330.
2-Methylphenol	< 330	330.
1,2-Dichlorobenzene	< 330	330.
Bis(2-chloroisopropyl)ether	< 330	330.
4-Methylphenol	< 330	330.
N-Nitrosodi-n-propylamine	< 330	330.
Hexachloroethane	< 330	330.
Nitrobenzene	< 330	330.
Isophorone	< 330	330.
2,4-Dimethylphenol	< 330	330.
1,2,4-Trichlorobenzene	< 330	330.
2-Nitrophenol	< 330	330.
Benzoic acid	< 1600	1600.
Bis(2-chloroethoxy) methane	< 330	330.
2,4-Dichlorophenol	< 330	330.
Naphthalene	< 330	330.
4-Chloroaniline	< 330	330.
Hexachlorobutadiene	< 330	330.
4-Chloro-3-methlyphenol	< 330	330.
2-Methylnaphthalene	9700.	330.
Hexachlorocyclopentadiene	< 330	330.
2,4,6-Trichlorophenol	< 330	330.
2,4,5-Trichlorophenol	< 1600	1600.
2-Chloronaphthalene	< 330	330.
3-Nitroaniline	< 1600	1600.
Dimethylphthalate	< 330	330.
2,6-Dinitrotoluene	< 330	330.
Acenaphthylene	< 330	330.
2-Nitroaniline	< 1600	1600.
Acenaphthene	< 330	330.
2,4-Dinitrophenol	< 1600	1600.
4-Nitrophenol	< 1600	1600.
2,4-Dinitrotoluene	< 330	330.
Dibenzofuran	< 330	330.

page 1

	COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
	Diethylphthalate	< 330	330.
	4-Chlorophenyl phenyl ether	< 330	330.
	Fluorene	940.	330.
	4-Nitroaniline	< 1600	1600.
	4,6-Dinitro-2-methylphenol	< 1600	1600.
	N-Nitrosodiphenylamine	< 330	330.
	4-Bromophenyl phenyl ether	< 330	330.
	Hexachlorobenzene	< 330	330.
	Pentachlorophenol	< 1600	1600.
	Phenanthrene	< 330	330.
	Anthracene	< 330	330.
•	Butyl benzyl phthalate	< 330	330.
	Fluoranthene	< 330	330.
	Pyrene	< 330	330.
	Di-n-butylphthalate	< 330	330.
	3,3'-Dichlorobenzidine	< 660	660.
-	Benzo(a)anthracene	< 330	330.
	Bis(2-ethylhexyl)phthalate	< 330	330.
	Chrysene	< 330	330.
	Di-n-octylphthalate	< 330	330.
	Benzo(b) fluoranthene	< 330	330.
	Benzo(k) fluoranthene	< 330	330.
	Benzo(a)pyrene	< 330	330.
	Indeno(1,2,3-c,d)pyrene	< 330	330.
	Dibenz(a,h)anthracene	< 330	330.
٠	Benzo(g,h,i)perylene	< 330	330.

Surrogates	* Recovery	
2-Fluorophenol	65	
Phenol d-6	55	
Nitrobenzene-d5	101	
2-Fluorobiphenyl	71	
2,4,6-Tribromophenol	55	
Terphenyl-d14	69	

Comments:

Analyst:

Reviewed By:

Date: 04/12/89

S. Azimi-galloway

Laboratory Director:

J. M. Bartell



James

Project: <u>McGranahan 4.0</u>

Lab ID: 23295

Sample

SB8-2-B

Location: 45.5 - 46.0'

Date

Collected: 03/24/89

Sample

Number: <u>24697</u>

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

F. Ramezanzadeh

Reviewed By:
J. M. Hook

Date: 04/10/89

Laboratory Director:

M. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: 23296

Sample

SB8-2-B

Date

Location: 50.5 - 51.0'

Collected: 03/24/89

Sample

Number: <u>24698</u>

Date

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (mqq) (maga) Total Concentration: Standard Oil and Grease Reference 80. 10.

Comments: 1:2 dilution used in analysis.

Analyst: <

Reviewed By

Date: 04/10/89

Ramezanzadeh

Laboratory Director:

Project: <u>McGranahan 4.0</u>

Lab ID: <u>23297</u>

Sample

SB8-2-B

Location: 55.5 - 56.0'

Date

Collected: 03/24/89

Sample

Number: <u>24699</u>

Date

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit

ug/g ug/g

Soil (ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

80.

10.

Comments: 1:2 dilution used in analysis.

Analyst: Kanga Analyst: Ramezenzadeh

Reviewed By

M. Hoch

Laboratory Director:

Bartall

Date: 04/10/89

Project: McGranahan 4.0

Lab ID: 23298

Sample

SB8-2-B

Date

Location: 60.5 - 61.0'

Collected: <u>03/24/89</u>

Sample Number:

24700

Date

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (mqq) (mqq) Total Concentration:

Standard Oil and Grease Reference

10.

5.

Comments:

Reviewed By: Date: 04/10/89 Ramezanzadeh

Laboratory Director:

Project: <u>McGranahan 4.0</u>

Lab ID: <u>23281</u>

Sample

SB9-3-E

Location: 20.0 - 21.0'

Date Collected: 03/24/89

Sample

Number: <u>24704</u>

Date

Analyzed: <u>04/10/89</u>

	Analyte Concentration ug/g	Detection Limit ug/g
Soil	(mqq)	(mqq)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: <

Reviewed B

Date: 04/10/89

F. Ramezanzadeh

Laboratory Director:

J. M. Hoợn

M Bartell

Project: McGranahan 4.0

Lab ID: <u>23282</u>

Sample

SB9-3-E

Location: 25.5 - 26.0'

Date Collected: 03/24/89

Sample

Number: <u>24705</u>

Date

Analyzed: <u>04/10/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst:

Reviewed By

T M Hook

Date: 04/10/89

F. Ramezanzadeh

Laboratory Director:

. M. Bartell

Project: McGranahan 4.0

Lab ID: _23283

Sample

SB9-3-E

Location: 30.5 - 31.0'

Date Collected: 03/24/89

Sample

Number: <u>24706</u>

Date

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm) (ppm)

Total Concentration:
Standard Oil and Grease Reference < 5 5.

Comments:

Analyst: <

Reviewed By

M Uash

CDate: 04/10/89

Ramezanzadeh

Laboratory Director:

M. Barte1

Project: <u>McGranahan 4.0</u>

Lab ID: <u>23218</u>

Sample

SB9-3-E

Date

Location: 5.5 - 6.0'

Collected: 03/23/89

Sample

Number: <u>24701</u>

Date

Analyzed: <u>04/07/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

<u>Soil</u>

Total Concentration:

Standard Oil and Grease Reference

300.

50.

Comments: 1:10 dilution used in analysis.

Analyst: Reviewed By F. Ramedanzadeh

J. M. Hoofn

Date: 04/10/89

Laboratory Director:

J. M. Bartell



Project: McGranahan 4.0

Lab ID: 23219

Sample

SB9-3-E

Sample SB9-3-E Location: 10.5 - 11.0'

Date

Collected: 03/23/89

Sample

Number: 24702 Date

Analyzed: <u>04/07/89</u>

Analyte Detection Concentration Limit ug/g ug/g (mqq) (maga)

Soil '

Total Concentration: Standard Oil and Grease Reference

20.

5.

Comments:

Reviewed By Date: 04/10/89 zadeh J. M. Hoch

Laboratory Director:

Project: McGranahan 4.0

Lab ID: <u>23220</u>

Sample

SB9-3-E

Location: 15.5 - 16.0'

Date

Collected: 03/23/89

Sample

Number: <u>24703</u>

Date

Analyzed: <u>04/07/89</u>

	Analyte Concentration ug/g	Detection Limit ug/g
<u>Soil</u>	<u>(mqq)</u>	(ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: Reviewed By: Date: 04/10/89
F. Ramezanzadeh J. M. Hoch

Laboratory Director:

J. M. Bartel

Project: McGranahan 4.0

Lab ID:

23284

Sample

SB9-3-E

Location: 35.5 - 36.0'

Date

Collected: 03/24/89

Sample

Number: <u>24707</u>

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: Reviewed By: Date: 04/10/8

F. Ramezanzadeh

J. M. Hock

Laboratory Director:

. M. Barte/1)

Project: McGranahan 4.0

Lab ID:

_23285

Sample

SB9-3-E

Location: 40.5 - 41.0'

Date

Collected: 03/24/89

Sample

Soil

Number: <u>24708</u>

Date

Analyzed: <u>04/10/89</u>

Analyte Detection
Concentration Limit
ug/g ug/g
(ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst: Reviewed By: Date: 04/10/89
F. Ramezanzadeh

J. M. Hogh

Laboratory Director:

. M. Bartel

Project: McGranahan 4.0

Lab ID: 23286

Sample SB9-3-E

Date

Location: 50.5 - 51.0'

Collected: 03/24/89

Sample

Number: 24709

Date

Analyzed: <u>04/10/89</u>

Analyte Concentration Detection Limit

Soil

ug/g (mqq)

ug/g (mqq)

Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst: Ramezanzadeh Reviewed By

Laboratory Director:

Project: McGranahan 4.0

Lab ID:

23287

Sample

SB9-3-E

Location: 60.5 - 61.0'

Date

Collected: 03/24/89

Sample

Number: <u>24710</u>

Date

Analyzed: <u>04/10/89</u>

Soil

Analyte Concentration Detection Limit ug/g

ug/g
(ppm)

(maga)

Total Concentration:

Standard Oil and Grease Reference

20.

5.

Comments:

Analyst - Ken

Reviewed By

J. M. Hock

Date: 04/10/89

F. Ramezanzadeh

Laboratory Director:

. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID:

23272

Sample

SB10-4-A

Date

Location: 10.5 - 11.0'

Collected: 03/24/89

Sample

Number: <u>24712</u>

Date .

Analyzed: <u>04/10/89</u>

Analyte Concentration Detection Limit

Soil

ug/g

ug/g

(mqq)

(mqq)

Total Concentration:

Standard Oil and Grease Reference

1400.

250.

Comments: 1:50 dilution used in analysis.

Analyst:

Reviewed B

Date: 04/10/89

zanzadeh

Laboratory Director:

Project: McGranahan 4.0

Lab ID: <u>23271</u>

Sample

SB10-4-A

Location: 5.5 - 6.0'

Date Collected: 03/24/89

Sample

Number: <u>24711</u>

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: Reviewed By: Date: 04/10/89

F. Ramezanzadeh

J. M. Hoch

Laboratory Director:

J. M. Bartel

Project: McGranahan 4.0

Lab ID: 23273

Sample

SB10-4-A

Date

Location: 15.5 - 16.0'

Collected: 03/24/89

Sample

Number: <u>24721</u>

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Ramezanzadeh

Reviewed By

C Date: 04/10/89

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 23274

Sample

SB10-4-A

Location: 20.5 - 21.0'

Collected: <u>03/24/89</u>

Sample

Number: <u>24722</u>

Date

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst:

Reviewed By

Date: <u>04/10/89</u>

Laboratory Director:

<u>McLaren</u>

Project: <u>McGranahan 4.0</u>

Lab ID: 23275

Sample

SB10-4-A

Location: 25.5 - 26.0'

Date Collected: 03/24/89

Sample

Number: 24723

Date

Analyzed: <u>04/10/89</u>

	Analyte Concentration	Detection Limit
<u>Soil</u>	(ppm)	(ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By:

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 23276

Sample

SB10-4-A

Location: 30.5 - 31.0'

Date Collected: 03/24/89

Sample

Number: <u>24724</u>

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>		Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Refere	ence	< 5	5.

Comments:

Analyst: They

Reviewed By

J. M. Hoch

Laboratory Director:

Project: McGranahan 4.0

Lab ID: 23277

Sample

SB10-4-A

Date

Location: 35.5 - 36.0'

Collected: 03/24/89

Sample

Number: 24725 Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Reviewed By

nzadeh

Laboratory Director:

<u>McLaren</u>

Project: McGranahan 4.0

Lab ID: _23288

Sample

SB8-2-B

Location: 25.5 - 26.0'

Collected: 03/24/89

Sample

Number: <u>24693</u>

Date

Date

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit ug/g ug/g (ppm)

Total Concentration:
Standard Oil and Grease Reference 120. 20.

Comments: 1:4 dilution used in analysis.

Analyst:

F. Ramezanzadeh

Reviewed By

T M Hode

<u>C</u>Date:<u>04/10/8</u>

Laboratory Director:

J. M. Bartel

<u>McLaren</u>

Project: McGranahan 4.0

Lab ID: <u>23289</u>

Sample

SB8-2-B

Date

Location: 30.5 - 31.0'

Collected: <u>03/24/89</u>

Sample

Number: <u>24694</u>

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	10.	5.

Comments:

Analyst: Reviewed By Date: 04/10/89
F. Ramezanzadeh

Laboratory Director:

. M. Bartell

Project: <u>McGranahan 4.0</u>

Lab ID: 23290

Sample

SB8-2-B

Date

Location: 35.5 - 36.0'

Collected: 03/24/89

Sample

Number:

24695

Date

Analyzed: <u>04/10/89</u>

<u>Soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration:		
Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: anzadeh Reviewed By J. M. Hoch Date: 04/10/89

Laboratory Director:

Project: <u>McGranahan 4.0</u>

Lab ID: _23291

Sample

SB8-2-B

Date

Location: 40.5 - 41.0'

Collected: 03/24/89

Sample

Number: <u>24696</u>

Date

Analyzed: <u>04/10/89</u>

	Analyte Concentration ug/g	Detection Limit ug/g
<u>Soil</u>	(mad)	(ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: F Paragenzadol

Reviewed By

Date: <u>04/10/89</u>

. Ramezanzadeh

Laboratory Director:

M. Bartell

PESTICIDES MODIFIED EPA METHOD 8080

23292

Project: McGranahan 4.0 Lab ID:

SB8-2-B Date

Location: 40.5 - 41.0' Collected: 03/24/89

Sample Date

Number: <u>24696</u> Analyzed: <u>04/07/89</u>

COMPOUND	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
Alpha-BHC Gamma-BHC Delta-BHC Beta-BHC Heptachlor Aldrin Heptachlor Epoxide Endosulfan I 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II 4,4'-DDT Endrin Aldehyde Endosulfan Sulfate	< 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005 < 0.005	0.005 0.005 0.005 0.005 0.005 0.005 0.005 0.005 0.005 0.005
Toxapene Chlordane	< 0.10 < 0.02	0.10 0.02

Surrogate Recovery: 93%

Comments:

Sample

Analyst J. M. Hoch Reviewed By: S. Azimi-Galloway Date: 04/10/89

Laboratory Director:

J. M. Barte

HSL VOLATILE ORGANICS EPA METHOD 8240

Project: <u>McGranahan 4.0</u> Lab ID: 23293

Sample SB8-2-B Date

Location: 40.5 - 41.0' Sampled: 03/24/89

Sample Date

Number: 24696 Analyzed: <u>04/05/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Chloromethane	< 1000	1000.
Bromomethane	< 1000	1000.
Vinyl Chloride	< 1000	1000.
Chloroethane	< 1000	1000.
Methylene Chloride	< 2500	2500.
Acetone	< 4300	4300.
Carbon Disulfide	< 500	500.
1,1-Dichloroethene	< 500	500.
1,1-Dichloroethane	< 500	500.
1,2-Dichloroethene(cis/trans)	< 500	500.
Chloroform	< 500	500.
1,2-Dichloroethane	< 500	500.
2-Butanone	< 2500	2500.
1,1,1,-Trichloroethane	< 500	500.
Carbon Tetrachloride	< 500	500.
Bromodichloromethane	< 500	500.
1,2-Dichloropropane	< 500	500.
Trans-1,3-Dichloropropene	< 500	500.
Trichloroethene	< 500	500.
Benzene	< 500	500.
1,1,2-Trichloroethane	< 500	500.
Dibromochloromethane	< 500	500.
Cis-1,3-Dichloropropene	< 500	500.
Bromoform	< 500	500.
4-Methyl-2-pentanone	< 2500	2500.
2-Hexanone	< 2500	2500.
1,1,2,2-Tetrachloroethane	< 500	500.
Tetrachloroethylene	< 1000	1000.
Toluene	< 500	500.
Chlorobenzene	< 500	500.
Ethyl Benzene	< 500	500.
Styrene	< 500	500.
Total Xylene	< 500	500.
Freon 113	< 500	500.
7	Tool who	

Analyst: 2. Badal Reviewed By: Date: 04/06/89 K. Badal

Laboratory Director;

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Diethylphthalate	< 330	330.
4-Chlorophenyl phenyl ether	< 330	330.
Fluorene	< 330	330.
4-Nitroaniline	< 1600	1600.
4,6-Dinitro-2-methylphenol	< 1600	1600.
N-Nitrosodiphenylamine	< 330	330.
4-Bromophenyl phenyl ether	< 330	330.
Hexachlorobenzene	< 330	330.
Pentachlorophenol	< 1600	1600.
Phenanthrene	< 330	330.
Anthracene	< 330	330.
Butyl benzyl phthalate	< 330	330.
Fluoranthene	< 330	330.
Pyrene	< 330	330.
Di-n-butylphthalate	< 330	330.
3,3'-Dichlorobenzidine	< 660	660.
Benzo(a) anthracene	< 330	330.
Bis(2-ethylhexyl)phthalate	< 330	330.
Chrysene	< 330	330.
Di-n-octylphthalate	< 330	330.
Benzo(b) fluoranthene	< 330	330.
Benzo(k) fluoranthene	< 330	330.
Benzo(a) pyrene	< 330	330.
Indeno(1,2,3-c,d)pyrene	< 330	330.
Dibenz(a,h)anthracene	< 330	330.
Benzo(g,h,i)perylene	< 330	330.

Surrogates	<pre>% Recovery</pre>	
2-Fluorophenol	79	
Phenol d-6	66	
Nitrobenzene-d5	73	
2-Fluorobiphenyl	101	
2,4,6-Tribromophenol	61	
Terphenyl-d14	79	

Comments:

Analyst

Reviewed By:

S. Azimi +Ga/lawax

Laboratory Director:

M. Bartell

page 2



PESTICIDES MODIFIED EPA METHOD 8080

Project: McGranahan 4.0 Lab ID: 23221

Sample SB9-3-E Date

Location: 15.5 - 16.0' Collected: 03/23/89

Sample Date

Number: <u>24703</u> Analyzed: <u>04/03/89</u>

COMPOUND	Analyte Concentration	Reporting Limit		
	ug/g	ug/g		
•	(ppm)	(ppm)		
Alpha-BHC	< 0.005	0.005		
Gamma-BHC	< 0.005	0.005		
Delta-BHC	< 0.005	0.005		
Beta-BHC	< 0.005	0.005		
Heptachlor	< 0.005	0.005		
Aldrin	< 0.005	0.005		
Heptachlor Epoxide	< 0.005	0.005		
Endosulfan I	< 0.005	0.005		
4,4'-DDE	< 0.005	0.005		
Dieldrin	< 0.005	0.005		
Endrin	< 0.005	0.005		
4,4'-DDD	< 0.005	0.005		
Endosulfan II	< 0.005	0.005		
4,4'-DDT	< 0.005	0.005		
Endrin Aldehyde	< 0.005	0.005		
Endosulfan Sulfate	< 0.005	0.005		
Toxapene	< 0.10	0.10		
Chlordane	< 0.02	0.02		

Surrogate Recovery: 80%

Comments:

Analyst Reviewed By: S. Azimi-Galloway

Laboratory Director;

J. M. Bartell

<u>McLaren</u>

POLYCHLORINATED BIPHENYLS MODIFIED EPA METHOD 8080

Project: McGranahan 4.0

Lab ID: 23221

Sample

SB9-3-E

Date

Location: 15.5 - 16.0'

Collected: <u>03/23/89</u>

Sample

Number: <u>24703</u>

Date

Analyzed: 04/03/89

Aroclor Type	Analyte Concentration ug/g (ppm)	Reporting Limit ug/g (ppm)
1016	< 0.05	0.05
1221	< 0.10	0.10
1232	< 0.05	0.05
1242	< 0.05	0.05
1248	< 0.05	0.05
1254	< 0.05	0.05
1260	< 0.05	0.05

Surrogate Recovery: 808

Comments:

Analyst:

Reviewed By:

Date: 04/07/89

S. Azimi-galloway

Laboratory Director:

<u>McLaren</u>

HSL VOLATILE ORGANICS EPA METHOD 8240

Project: McGranahan 4.0 Lab ID: 23222

Sample SB9-3-E Date

Location: 15.5 - 16.0' Sampled: 03/23/89

Sample Date

Number: <u>24703</u> Analyzed: <u>04/05/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Chloromethane	< 1000	1000.
Bromomethane	< 1000	1000.
Vinyl Chloride	< 1000	1000.
Chloroethane	< 1000	1000.
Methylene Chloride	< 2500	2500.
Acetone	< 2500	2500.
Carbon Disulfide	< 500	500.
1,1-Dichloroethene	< 500	500.
1,1-Dichloroethane	< 500	500.
1,2-Dichloroethene(cis/trans) < 500	500.
Chloroform	< 500	500.
1,2-Dichloroethane	< 500	500.
2-Butanone	< 2500	2500.
1,1,1,-Trichloroethane	< 500	500.
Carbon Tetrachloride	< 500	500.
Bromodichloromethane	< 500	500.
1,2-Dichloropropane	< 500	500.
Trans-1,3-Dichloropropene	< 500	500.
Trichloroethene	< 500	500.
Benzene	< 500	500.
1,1,2-Trichloroethane	< 500	500.
Dibromochloromethane	< 500	500.
Cis-1,3-Dichloropropene	< 500	500.
Bromoform	< 500	500.
4-Methyl-2-pentanone	< 2500	2500.
2-Hexanone	< 2500	2500.
1,1,2,2-Tetrachloroethane	< 500	500.
Tetrachloroethylene	< 1000	1000.
Toluene	< 500	500.
Chlorobenzene	< 500	500.
Ethyl Benzene	< 500	500.
Styrene	< 500	500.
Total Xylene	< 500	500.
Freon 113	TO 600	500.

Analyst: X. Badal Reviewed By: Date: 04/06/89

R. L. Papes

Laboratory Director:

McLaren

or:___

M. Bartel

Lab ID: 23222

GCMS 8240 SURROGATE % RECOVERY

Compounds	% Recovery	Soil Matrix		
S1 = D4-1,2-Dichloroethane	89	70-121		
S2 = D8-Toluene	108	81-117		
S3 = 4-Bromofluorobenzene	108	74-121		

Comments:



BEMI-VOLATILE ORGANICS EPA METHOD 8270

Project: McGranahan 4.0 Lab ID: 23223

Sample SB9-3-E Date

Location: 15.5 - 16.0' Collected: 03/23/89

Sample

Number: <u>24703</u> Analyzed: <u>04/11/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Phenol	< 330	330.
Bis(2-chloroethyl)ether	< 330	330.
2-Chlorophenol	< 330	330.
1,3-Dichlorobenzene	< 330	330.
1,4-Dichlorobenzene	< 330	330.
Benzyl alcohol	< 330	330.
2-Methylphenol	< 330	330.
1,2-Dichlorobenzene	< 330	330.
Bis(2-chloroisopropyl)ether	< 330	330.
4-Methylphenol	< 330	330.
N-Nitrosodi-n-propylamine	< 330	330.
Hexachloroethane	< 330	330.
Nitrobenzene	< 330	330.
Isophorone	< 330	330.
2,4-Dimethylphenol	< 330	330.
1,2,4-Trichlorobenzene	< 330	330.
2-Nitrophenol	< 330	330.
Benzoic acid	< 1600	1600.
Bis(2-chloroethoxy)methane	< 330	330.
2,4-Dichlorophenol	< 330	330.
Naphthalene	< 330	330.
4-Chloroaniline	< 330	330.
Hexachlorobutadiene	< 330	330.
4-Chloro-3-methlyphenol	< 330	330.
2-Methylnaphthalene	< 330	330.
Hexachlorocyclopentadiene	< 330	330.
2,4,6-Trichlorophenol	< 330	330.
2,4,5-Trichlorophenol	< 1600	1600.
2-Chloronaphthalene	< 330	330.
3-Nitroaniline	< 1600	1600.
Dimethylphthalate	< 330	330.
2,6-Dinitrotoluene	< 330	330.
Acenaphthylene	< 330	330.
2-Nitroaniline	< 1600	1600.
Acenaphthene	< 330	330.
2,4-Dinitrophenol	< 1600	1600.
4-Nitrophenol	< 1600	1600.
2,4-Dinitrotoluene	< 330	330.
Dibenzofuran	< 330	330.
		

page 1

<u>McLaren</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Diethylphthalate -	< 330	330.
4-Chlorophenyl phenyl ether	< 330	330.
Fluorene	< 330	330.
4-Nitroaniline	< 1600	1600.
4,6-Dinitro-2-methylphenol	< 1600	1600.
N-Nitrosodiphenylamine	< 330	330.
4-Bromophenyl phenyl ether	< 330	330.
Hexachlorobenzene	< 330	330.
Pentachlorophenol	< 1600	1600.
Phenanthrene	< 330	330.
Anthracene	< 330	330.
Butyl benzyl phthalate	< 330	330.
Fluoranthene	< 330	330.
Pyrene	< 330	330.
Di-n-butylphthalate	< 330	330.
3,3'-Dichlorobenzidine	< 660	660.
Benzo(a) anthracene	< 330	330.
Bis(2-ethylhexyl)phthalate	< 330	330.
Chrysene	< 330	330.
Di-n-octylphthalate	< 330	330.
Benzo(b) fluoranthene	< 330	330.
Benzo(k) fluoranthene	< 330	330.
Benzo(a) pyrene	. < 330	330.
Indeno(1,2,3-c,d)pyrene	< 330	330.
Dibenz(a,h)anthracene	< 330	330.
Benzo(g,h,i)perylene	< 330	330.

Surrogates	<pre>\$ Recovery</pre>		
2-Fluorophenol	63		
Phenol d-6	49		
Nitrobenzene-d5	55		
2-Fluorobiphenyl	77		
2,4,6-Tribromophenol	46		
Terphenyl-d14	55		

Comments:

Analyst:

_Reviewed By:

ed by Simi-Galloway

Laboratory Director:

M. Bartel



page 2

Project: McGranahan 4.0

Lab ID: 23278

Sample

SB10-4-A

Date

Location: 40.5 - 41.0'

Collected: 03/24/89

Sample

Number: <u>24726</u>

Date

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (maga) (maga) Total Concentration: Standard Oil and Grease Reference < 5 5.

Comments:

Reviewed By

ACDate: 04/10/89

Laboratory Director:

. M. Hoch

Project: McGranahan 4.0

Lab ID: <u>23279</u>

Sample

SB10-4-A

Location: 50.5 - 51.0'

Date Collected: 03/24/89

Sample

Number: <u>24727</u>

Date

Analyzed: <u>04/10/89</u>

<u>soil</u>	Analyte Concentration ug/g (ppm)	Detection Limit ug/g (ppm)
Total Concentration: Standard Oil and Grease Reference	< 5	5.

Comments:

Analyst: Reviewed By: Bate: 04/10/89

Laboratory Director:

J. M. Bartell

Project: McGranahan 4.0

Lab ID: <u>23280</u>

Sample

SB10-4-A

Date

Location: 60.5 - 61.0'

Collected: <u>03/24/89</u>

Sample

Date

Number: <u>24728</u>

Analyzed: <u>04/10/89</u>

Analyte Detection Concentration Limit ug/g ug/g Soil (ppm) (ppm)

Total Concentration:

Standard Oil and Grease Reference

< 5

5.

Comments:

Analyst:

Reviewed By

Date: <u>04/10/8</u>

F. Ramezanzadeh

Laboratory Director

J. M. Bartell

<u>McLaren</u>

SEMI-VOLATILE ORGANICS **EPA METHOD 8270**

Project: McGranahan 4.0 Lab ID: 23294

Date

Sample SB8-2-B Location: 40.5 - 46.0' Collected: 03/24/89

Sample

Number: 24697 Analyzed: <u>04/11/89</u>

COMPOUND	Analyte Concentration ug/kg (ppb)	Reporting Limit ug/kg (ppb)
Phenol	< 330	330.
Bis(2-chloroethyl)ether	< 330	330.
2-Chlorophenol	< 330	330.
1,3-Dichlorobenzene	< 330	330.
1,4-Dichlorobenzene	< 330	330.
Benzyl alcohol	< 330	330.
2-Methylphenol	< 330	330.
1,2-Dichlorobenzene	< 330	330.
Bis(2-chloroisopropyl)ether	< 330	330.
4-Methylphenol	< 330	330.
N-Nitrosodi-n-propylamine	< 330	330.
Hexachloroethane	< 330	330.
Nitrobenzene	< 330	330.
Isophorone	< 330	330.
2,4-Dimethylphenol	< 330	330.
1,2,4-Trichlorobenzene	< 330	330.
2-Nitrophenol	< 330	330.
Benzoic acid	< 1600	1600.
Bis(2-chloroethoxy)methane	< 330	330.
2,4-Dichlorophenol	< 330	330.
Naphthalene	< 330	330.
4-Chloroaniline	< 330	330.
Hexachlorobutadiene	< 330	330.
4-Chloro-3-methlyphenol	< 330	330.
2-Methylnaphthalene	< 330	330.
Hexachlorocyclopentadiene	< 330	330.
2,4,6-Trichlorophenol	< 330	330.
2,4,5-Trichlorophenol	< 1600	1600.
2-Chloronaphthalene	< 330	330.
3-Nitroaniline	< 1600	1600.
Dimethylphthalate	< 330	330.
2,6-Dinitrotoluene	< 330	330.
Acenaphthylene	< 330	330.
2-Nitroaniline	< 1600	1600.
Acenaphthene	< 330	330.
2,4-Dinitrophenol	< 1600	1600.
4-Nitrophenol	< 1600	1600.
2,4-Dinitrotoluene	< 330	330.
Dibenzofuran	< 330	330.

McLaren

page 1

Lab ID: 23293

GCMS 8240 SURROGATE % RECOVERY

Compounds	<pre>% Recovery</pre>	Soil Matrix		
S1 = D4-1,2-Dichloroethane	93	70-121		
S2 = D8-Toluene	102	81-117		
S3 = 4-Bromofluorobenzene	107	74-121		

Comments:



McLaren Environmental Analytical Laboratory

Sample Tracking Sheet

92		ing Sheet		Rev1e	Date wed By	: SAU	di E	
Client Project: MC & C			Sample	LD.	Lab	LD.	Co	ntainer
	B3							
Analysis Matri		,						
Date Sampled		789	238	110				
Date Recieve	d:		,	, <i>(</i> 2				
Cost:			-			sice	,	
Analysis: ! Sample	Metals	57 L C				5,00		
Sample Vol/Wgt:	109	Final Extract Vol: 100m	Column	ļ			•	
)	•		Date	3/6	3/6			
Sample I.D.:		Une 2	Dilution	-				
Lab I.D.: 21		Date Prep d: 3/4/89	Worker	FR	FR	`		
Units: ug/mi	Гььш	Date Anal'd: 3/6/89	Lab I.D.	a1858	21858			
MDL		ANALYTE(S)	Final	ļ			****	
0.5	Antimo	ny (Sb)/7040						
0.05	Arseni	c_(As)/7061						
1	Barium	(Ba)/7080	11.	11.34	10.86	100		
0.05	Berv11	ium (Be)/7090						
0.01	Cadmiu	m (Cd)/7130						
0.02	Chromi	um (Cr)/7190						
0.08	Cobalt	(Cõ)/7200						
0.09	Copper	(Cu)/7210	<0.09	0.02		25		
0.05	Lead (Pb)/7420	a.	1.98		5		
0.002	Mercur	y (Hg)/74 7 0						
1	Molybd	enum (Mo)/7480						
0.2	Nickel	(N1)/7520						
0.01	Seleni	um (Se)/7741						
0.05	Silver	(Ag)/7760						
1.	Thallium (Tl)/7840						· 	
0.5								
0.08	Zinc (2n)/7950							
0.05		Chromium (CrVI)/7195						
0.6								
0.05		c Lead (Pb)/DHS						
0.07		1um (Mg)/7450						
0.1		m (Ca)/7140						

	·			-	-			Ou	rcy Bei	GO
PROJECT DI	ESIGNATION MC	Grano	iha	n = 4	<u>-'O</u>	SA	AMPLES TAK	EN BY: TOU	w Bera	er
4054	OAMBIE : OCATION)	TIME		MPLE T	YPE			1	
AREA	SAMPLE LOCATION	N DATE	TIME		TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALY REQUI	
10-4-A	5,5-6,0	1 3/24/8	59			/	2471	Brass	418	1 23:
	10.5-11.	0' 1			મં -		24712	,	418.1	232-
	15,5-16,	1.3					2473		418.1	(2327
	20.5-21.0	0'					24722		418.1	(2-327
	25,5-26.	0					24723		418.1	(2327
	30.5-31.0	o'					24724		418.1	2327
	35.5-36.0						24725		418.1	2327
	40.5-41.0	/		<u>.</u>	# 1		24726	· :	418.)	232
	50.5-51.0	/					2472	-	418.1	231
1	60.5-61.0	/				1 2	24728		A18.1	, 232
IMMEDIA STORAGI	TE DELIVERY X	R 🗆 ID						SECURED X YES	}	
RELINQUISH	\sim (\sim 000	wyper	gy	REC	EIVED B	BY:*			DATE	TIME ACO
RELINQUISH		100	<u> </u>	REC	EIVED <u>\$</u>	SY:*			DATE	TIME
HECEIVED F	OR LABORATORY BY:	2 -							3/25/8	/TIME
METHOD OF	SHIPMENT:	EX	, - ,						· · · · · · · · · · · · · · · · · · ·	
LABORATOR	Y DISPOSITION: (300 8	ŰK							
IMMEDIATE A	ANALYSIS T	Sampo In Coo	RAGE	:CE!	VED		RIGERATOR EZER	□ ID	8	SECURED
• DOINT NAME	IF AFTER CIONATUSE		- 900	1 771 !	1014	CAB	INET	D ID		YES NO
PHIN I NAM ≜	IE AFTER SIGNATURE									
	McLaren E	Environmental	l Engine	ering						

212932

L.P. 1585

•			*	-		•		A	\mathcal{L}	4.40		
PPO JECT O	ESIGNATION MA A	anak	\ \ \ \	Α	\cap	6	AMPLEŞ TAK	EN DV.	na	cy by	gj	
PHOJECT	ESIGNATION MC	au	ω	SAI	MPLE TY		AMPLES IAN	ENBY: 1	acy	Perge	<u>r</u>	
AREA	SAMPLE LOCATION	DATE	TIME	WA'	TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINE	R(S)	ANALY: REQUIF		
B9 <u>-3-€</u>	5.5-bod	3/24/8	9			/	RAPAN	Bras	30	HAL	h '	Y0/.
	1013-11.01						P41703	100				
	15.5/16.0			,								
,	20.0-21.01				·		24704			418-1		1328
	25,5-26.8					1	2470	5		418.1	$\overline{2}$	328
	30.5-31.01					1	24706			418.1	(2	328
	35,5-36,01						14707			41811	Œ	3284
	40.5-41.01					1 4	24708			418.1	(2	3280
	505-51:01			•	* *		24709			418.1	(2	328
	60.5-6110				,		24710			418.1	(2	318
FIELD DISPO	_											
STORAGE	TE DELIVERY 5 -	ID						SECUPED (n dec			
OTOTIAGE		ID					•	SECURED [JQES ∃NO			
RELINQUISH	ED BY: Gracy P			RECE	IVED B	Y:*				DATE/	TIME	
Macy	Bergei	- 0		ļ						D/24/8	59	
RELINQUISH	ED BY:			RECE	IVED B	Y:• 				DATE	TIME	
PECEIVED E	OP\LABQRATORY BY:	1		<u></u>	- R.			•		1 DATE	T10.45	
	Y STATION BY.	,					······			-3/25/89		o
WETHOB-OF	SHIPMENT:				-39					12/1401		- u
	FED. EX											
LABORATOR	Y DISPOSITION: COL	O & C)K									
IMMEDIATE A	MALYSIS	STORA	GE 🗆			REF	RIGERATOR	□ ID	_		SECU	RED
	,	SAMPL	ES R	ECZ:	VED	FRE		□ ID				
		n Gooi	D 130	NOI	TION	CAB	INET (□ ID			YES	NO
THINT NAM	E AFTER SIGNATURE		-									
	McLaren Enviro	onmental E	ngine	ering			·					
	11101 White Roo	ck Road, R	ancho (Cordov	a, CA	95670	916) 638	3-3696				

12 212933

LIP- 1585

_					_	٠			$<_{\tilde{\nu}}$	naus 1	ZEKRY
PROJECT DI	ESIGNATION MC G	rana	hau	7 4	1.0	S	AMPLES TAK	EN BY:	Trac	U Ber	æt
	U		TIME	SA	MPLE.T'	YPE					\mathcal{O}
AREA	SAMPLE LOCATION	DATE	IIME	COMP	TER GRAB	SOIL	SAMPLE NO.	TYF CONTAIN	PE NER(S)	ANALY REQUI	
SB8-2-B	25.5-26.0'	3/24/8	9			/	24693	Bras	5	418.1	23288
	30.5-31.01				*	1	24694	1		418.1	23289
	35.5-36.01						14695			418.1	
	40.5-41.01					4	14696		(2-32 23291)	3481,8	80,1834
	45.5-4601						4697	4	53513	18.1	7 2324
	50.5-51.01					á	4698			418.	1 (23=16)
	55,5-56,01					á	4699			418.	1 (2321)
	60:5-61.0'			į.	* *	Ē	4700			418.	23298
		,			,						
									1		
FIELD DISPO					-						
IMMEDIATE STORAGE	TE DELIVERY S	10						SECURED	W VEC		
STURAGE	•	ID						SECURED	□ NO		
RELINQUISH	HED BY: Chacy	Bown	201	REC	EIVED B	Y:*				DATE	TIME
Trace		ing		-						2/04/	827
RELINQUISH	IED BY:			RECI	EIVED B	Y:"				DATE	TIME
RECEIVED F	QR LABORATORY BY:									, DATE	/TIME
I Win	() —								-3/25/80	19:000
WETHOD OF	SHIPMENT:										
	FED. E	У				····					
		FOR	•				•				
IMMEDIATE /	ANALYSIS SAI	WP LEISE	GE.	Zive	D		RIGERATOR	□ ID			SECURED
	IN (good o	ON[OITIC	Ŋ			□ ID		•	YES NO
PRINT NAM	IE AFTER SIGNATURE			•		3	 -				. 20 , 110
	McLaren Envir	onmental L	Engine	ering						•	

L.P. 1578

٠.				•	_			and	CY BY	CH	•
. PROJECT D	ESIGNATION MA	DRANI	<u>OH</u>	ME	4.		MPLES TAK	EN BY: Trac	y Berk	ker	
AREA	SAMPLE LOCATION	DATE	TIME		MPLE TY				/ ()	l 	
AREA	SAMPLE LOCATION				GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALY REQUI	SIS RED	
7-53-	E 5.5-6.0	3/23/8	7			/	24681	Bass	418.1	1 (2	-3
1	10.5-11.0			7	H	1	24682	Ause	418.	1/2	3:
	17.5-16.0						14683		418-1	807	<u>30</u> 51
	11						1)		8340	82	Ħ
	2015-21.0'						24684		418-1		3:
	25.5-26.0'						24685		418-1	()	32
	30.5-31'		ļ				14686		418.1	2	3 }
	355-361					1	24687	-	418.	1 (2	3
	40.5-41'					1	2468		4181	SI	3
	. 11	1			``.	١	l u	}	82401	829	13 10
IMMEDIA STORAG	TE DELIVERY	ID	•	Ą	, i	's is .		SECUREDVZYES	· i	-	,
		ID	-	=				□ NO		··· <u>-</u>	
RELINQUISI		1 Berg	p/	REC	EIVED B	Y: *	. •		DATE	TIME	
T(QUISI		V		REC	EIVED B	Y:•			DATE	TIME	
			-								
A la	FOR LABORATORY BY:	levent	~1_#		3 0 :10:	.	HEHEMS	NIC 6	3/24/84	TIME	 51
	F SHIPMENT:	uccuma.			icha:	<u> </u>		(1154).	7,07	<u> </u>	_
	FED	EX			•						
BORATO	RY DISPOSITION:	0.00	DI E	2 05	new/	- D					
'DIATE	ANALYSIS	SAM In G	AGE ET	S RE	SEIVI NTT:	ELA _{EF}	RIGERATOR			SECU	RE
1	•	110 69		CON) }						(
	ME AFTER CICAIATURE					CAB	INET	□ ID		YES	N
, va i ∴ <u>≜</u>	ME AFTER SIGNATURE	* .									
									-		
	McLaren Envir	ronmental	Engine	eering			•				

212930

Lip. 1578

				_	. •		• .	_	Di	acy B	ergu
PROJECT DE	ESIGNATION MC	grano	uhan,				AMPLES TAKI	N BY:	ra	W Bei	ger
AREA	SAMPLE LOCATION	DATE	TIME	WAT COMP		SOIL	SAMPLE NO.	TYP		ANAL REQU	
7-58-E	50.5-51	3/23	189			/	24689 24696	Bras	Top		8./
9-3-E	5.5-6.0'	1			. 1		24701	•		418.	10
	10.5-11.01				•		24702			418.	10
	15,5-16,0	_					24703			212.1	81 181
										(2.3223)	000
						+				3040)	847
·		++				+					
		`				┼			<u> </u>		
	· · · · · · · · · · · · · · · · · · ·				• ,	<u> </u>					
					* .						
	4				,						
STORAGE	FREEZER	□ ID	- - Yev		VED BY		1. N 3/2	STOURED Y/X/	DY'ES	DATE 3/23	etime
RELINQUISH	ED BY:			RECE	IVED BY	/:•				DATE	TIME
	•						•)				<u></u>
<i>1</i> }	OR LABORATORY BY:	Hen	entrin) .//	Mic	YAE	l n. neu	ENBUR	ß	5/24/89	I/IME
METHOD OF	SHIPMENT: FET) .E	X								
LABORATOR	Y DISPOSITION:			*							
	· Didi Comon.										
IMMEDIATE A	MALYSIS IX	SAME	RAGE	GEN!	ED		RIGERATOR				SECU
IMMEDIATE A	ANALYSIS EX	Sampy In GCO			ed Ori	FRE	EZER !	⊐ ID			
	MALYSIS 🗹				ed Ori	FRE	EZER !				_
	ANALYSIS EX				ed Ori	FRE	EZER !	⊐ ID			

206785

McLaren Analytical Laboratory
Chain of Custody Record

L.P. 1569

,				-	-				Shu	ry B	19l	<i>'</i>
PROJECT D	ESIGNATION MC	(ana)	ha	n 4	4.0	SA	MPLES TAKE	EN BY:	Trai	Cy Bes	(10)	r'
	. (1	1		SAI	MPLE I	/PE				7	7	
AREA	SAMPLE LOCATION V	DATE	TIME		TER GRAB	SOIL	SAMPLE NO.	CONTAI		ANAL REQU		234
SB5-5A-	5.5-6.0'	3/22/8					24661	Bras	3 Tubes	418.		3073
185-5A-	L 10.5-11.0						2462		23128		80	80,
	11						11			8240	, 8 à	300 70
) 35- <u>5A-エ</u>	15.5-16.0'						24663			418.	1 (=	3/00
35-5A-J	20.5-21.0						2464			418.	16	3///
11	25.5-26.0						24665			16	(2.3	3/02
	30.5-31.01						24666			11	2	3105
- 11	35.5 ~ 36.0'						24667			11	(2)	3104
. 14	40.5-41.01						2468			11	$\sqrt{23}$	175
11	50.5-51.0'						24669	. }		418-1, 8	508C	102
FIELD DISPO	•				-	7	*			8240,	829	10
	TE DELIVERY 🕱							050105	- 	(2310g)	(= 3)	109
STORAGI	_	ID	•					SECURE	DNO □			
RELINQUISH			•	REC	EIVED B	Y:*	 			DAT	E/TIME	
Tracy	Berner Shary	Bexe	Y	-						3/22/	89	
RELINQUISH	IED BY	\mathcal{J}		REC	EIVED B	Y:•		* 41		DATI	E/TIME	
	OR LABORATORY BY:	1	A		· ·					1	E/TIME	
	Michael 11.	Thun	hung	MIC	HAFL	N. N	EUENBU	RG		3/23/8	9 10.	<u>:00</u>
METHOD OF	FE FE	DEX										
LABORATOF	RY DISPOSITION:						 					
	ANALYSIS S	AMPSTOR				REF	RIGERATOR	□ ID	· · ·		SECL	URED
	/ IN	GOOD	CON	IDIT	ON	FRE	EZER	□ ID				
	•					CAB	INET	□ I D		•	YES	NO
* PRINT NAM	ME AFTER SIGNATURE											
. ė	<u> </u>											

McLaren Environmental Engineering

42 212369

LIP. 1550

_		7			_	_			Sino	uy 12	UCI	W
	PROJECT DE	SIGNATION MCDY	anaho	n	4,	0		AMPLES TAKI	N BY: Trac	Berc	Je y	
	1051	<i>(</i>).	D	T:: 45	L	MPLE TY	YPE			1		
	AREA	SAMPLE LOCATION	DATE	TIME	COMP	TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANAL) REQUI	'SIS RED	
B5	-5A-I	60,5-61,0'	3/22/8	9			/	24670	Brass	418	.F	-31/
86	-5B-	L 5.5-6.01						24671	1456	418.1	80	577. ST)
	11	11						11		8740;	83	三
) 	(1)	10.5-11.01						24692		418.	\overline{IC}	23/!
-	11	15.5-16.0'						24673		418.	1/2	3116
	//	20.5-21.01						24674		11 (231	<u>=</u>
_	11	25.5-26.0						24675		"	23/1	2
-	h	30.5-31.0'						24676		"	23//	<u>9</u> >.
_	4	35.5-36.0						24677		11	23/20	<u>~</u>
-	11	40.5 -41.0			77.	163	1	24678		" >	2312	<u> </u>
. F	TELD DISPO	SITJON: E DELIVERY IX	,	*	.62	14		0 , 80	80 can		er E	
	STORAGE								SECURED XYES	3/24/8	9	۶
	IELINQUISHI		ID		RECE	IVED BY	/.•		□ NO.			
•		Berner Place	1 Por	VV	-				•	DATE	CS	
	ELINQUISHI		7		RECE	IVED BY	/: •			DATE	TIME	
 	ECEIVED EC	OR LABORATORY BY:*			<u></u>				•			
ľ	g.		Heun b	my		MICH	VE:	។ ខរត្តប្រើ	MENIEG	5/2 2/00	11ME /0 :	:00
M	ETHOD OF	SHIPMENT:)					4 - [↑] 7#		14-7/67		
=	AROBATOR	FED EX						- 17 - Yan - 17 - 17 - 17 - 17 - 17 - 17 - 17 - 1				
	MEDIATE A	DISPOSITION:	AMPLESTORA GOUL	GE 🔲	CZIV.	ED OM	REFF	RIGERATOR [] ID		SECUI	RED
		\rangle 11V	はいいい	'JUli	1 6 133	LIO	FREE) i b			
							CABII	NET [] ID		YES	NO
•	PRINT NAME	E AFTER SIGNATURE										

Å

McLaren Environmental Engineering

212370

SAMPLES TAKEN BY: Tray Berger McGranahan PROJECT DESIGNATION **AREA** SAMPLE LOCATION DATE WATER SAMPLE SOIL COMP GRAB REQUIRED NO. CONTAINER(S) 50.5-51.0' Blooks Bb-5B-24679 11 ١I 60.5-61.0 24680 \$240, 82 FOX, 80, 80 FIELD DISPOSITION: IMMEDIATE DELIVERY SECURED KYES STORAGE [] REFRIGERATOR [] ID ___ □ NO RELINQUISHED BY: RECEIVED BY: DATE/TIME RELINQUISHED BY: RECEIVED BY: DATE/TIME RECEIVED FOR LABORATORY BY: DATE/TIME METHOD OF SHIPMENT: LABORATORY DISPOSITION: SANIP STORAGED SIVED IMMEDIATE ANALYSIS REFRIGERATOR | ID _____ **SECURED** IN GOOD CONDITION FREEZER □ IĎ..... **CABINET** YES NO * PRINT NAME AFTER SIGNATURE McLaren Environmental Engineering

· Sale

McGranhon Flantson

RUSH

2 212524

			r		-							
PROJECT D	ESIGNATION	Mc	4C				S	AMPLES TAK	EN BY: EMA	manue f I	whh	מינטכ
		***************************************			SAI	MPLE T	YPE			<u> </u>		
AREA	SAMPLE LO	OCATION	DATE	TIME		TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANAL' REQU		,
<u>B3</u>	17.5-	B'	11-27-89				X	23818	Breil T	41	8.0	2045
	20.5	-21'	01-279				X	23/8/9	808 0 2/28 808 0 2/28	Souch K	8.K	204
B4	6-6	5.5'					X	23320	//	418.1	Priv	C. Pa
-	10.5'-	-10'					X	23821	1,	41	8.N	2245
	13,5-	14				•	X	238-5	. //	418	3.1	2245
	15.6	-15.5					X	23823	4 ~	1418	1.10	2045
RI	3.5-	4					X	23824		118.	Palpic	Poll
1	6,5'	-7'					X	23825	Ŋ	418		2046
	8'-	8.5					X	23826	્યુ	418	ار	2046
	12.5.	13.		::		·	X	23827	4	.418	3.10	2046
FIELD DISPO	DSITION;	7	k 60	empl) 0 a	an	inel	carl	dr. 7 11	'a '	y	
IMMEDIA	TE DELIVERY 🛭	*	Fox Suny	ole a	shed to	- be	Aum	4 03 V	0/8270/8080	pe .	(CAZ)	mel
STORAGE	E REFRIG	ERATOR []	ID	Mil	Shed to	16/81.	- /.	for 824	SECURED SEYES	1, , M, N	- //	28/8
	FREEZE	R 🗆		K	★	pre	only	indit	in langel	la per ±		
RELINQUISH	ED BY:		· · · · · · · · · · · · · · · · · · ·		RECE	IVED BY	Y:*	, , , , , ,		DATE		1/21/
Emm.		elecury							7-11	+		
RELINQUISH	ED BY:				RECE	IVED BY	(:*			DATE	TIME	
	-					······································						
	OR LABORATOR	RY BY:	Mercen	hu	ng					DATE 1/28/89	į.	<u>'00</u>
METHOD OF	SHIPMENT:	·	. 1	, /								
•	Air	Fiel	yht									
	Y DISPOSITION	, ,										
IMMEDIATE A	NALYSIS 🗆		STORA	GE 🗆			REFR	IGERATOR [] ID		SECU	RED
•							FREE	ZER [] ID			
.,			1.	,			CABIN	NET [] ID		YES	NO
PHINT NAM	E AFTER SIGNA	TURE	•									
ė			• ·	•								•

ÅÅ

McLaren Environmental Engineering

McLaren Analytical Laboratory Chain of Custody Record RusH McGranahan Elanson SAMPLES TAKEN BY: EMMUNUEL Lakeury PROJECT DESIGNATION MCCC SAMPLE TYPE SAMPLE LOCATION DATE TIME **AREA** WATER SAMPLE ANALYSIS REQUIRED SOIL COMP GRAB NO. CONTAINER(S) B2 51-27-89 23808 Brasy 151-27-89 01-2759 01-2749 01/2 11 Biz FIELD DISPOSITION: IMMEDIATE DELIVERY REFRIGERATOR [] ID ** **FREEZER** □ ID. **RELINQUISHED BY: RECEIVED BY:** Emmanuel RELINQUISHED BY: **RECEIVED BY:** DATE/TIME RECEIVED FOR LABORATORY BY: DATE/TIME 1/28/89 12:00 LABORATORY DISPOSITION: IMMEDIATE ANALYSIS REFRIGERATOR [] ID_ STORAGE [**SECURED** FREEZER CABINET * PRINT NAME AFTER SIGNATURE

. Š

McLaren Environmental Engineering

80, Co, Pb by 57LC re 8240 /8270 /8080

McLaren Environmental Engineering

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696

212562

McGienahan & Contion Rust

				SAI	MPLE T	YPE ·		EN BY: - MM	T	- /
AREA	SAMPLE LOCATION	DATE	TIME	COMP	TER GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANAL' REQU	
BI	15.5'-16'	01-2749				X	23828	-Rien T.	418	1/20
				ļ	;			•		- 3-
		27				£_			V	
										· .
		2	,	17						
			3	ļ						・ソ
			_					. V **	1	V
	`	د ساز	201	ι.						
				سا		•*.				·V
. 4,	•		7	,				14		1 1
STORAG	_	ID					•	SECURED YES	157.1	v. 1 /2
RELINQUISH	HED BY:	la.		RECE	IVED B	Y:•			DATE	/TIME
RELINQUISH	IED BY:	7		RECE	IVED B	Y:*	·		DATE	/TIME
The	OR LABORATORY BY:	Never	rug						DATE 1/-8/89	/TIME / /2:0
METHOD OF	SHIPMENT:	Freig	ht							
ABORATOR	Y DISPOSITION:						· · · · · · · · · · · · · · · · · · ·			
MMEDIATE	ANALYSIS 🗆	STORA	GE 🗆			REFR	RIGERATOR (□ ID		SECURE
						FREE		□ ID		
PRINT NAM	E AFTER SIGNATURE					CABI	NET (□ ID		YES N
							•			

M	cLaren An	alytic	al	Lal	oor	atc	ory		Nº 21252	0
Ch	ain of Custod	ly Rec	ord دار	^ /	\$	(arl	lson	. 1292 n 2/7/89	Rust	4
	5: ; · · · · · ((nan	an-	ار المار الم	ارما	aen SAG	m 2/7/89		
PPO IECT D	DESIGNATION MC4C		/ * *	BOLI	V	2 48 SA	MPLES TAKE	N BY: FM	nanuel Fa	bloary
	JESIGNATION / (= 3 C			SAN	IPLE TY					
AREA	SAMPLE LOCATION	DATE	TIME	COMP		SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALYS REQUIRI	
32	2.5 產 章	51-27-19				X	23808	Bras T.	MRH	4K.
	79-4.5	01-2789				X	2769	// *	XPrincip.	Polity.
	8.5-9'	01-2789				X	73810	*11	TOH	7104
	12.5'-13'	01-2747				X	23811	1-11-	TON	2044
	1.17-17.5	0 //		,		X	23812	Branio 1	1110 6 338CS	204
	23.5'-24'	//				X	23813	87/80	1001 /1	8.1/204
	29.5-301	11				X	23814	(4.0978	1171/11	8.120
·B3	7.5'-8'	1,			:	入	2,815	* K Bat V		Para
	12-12.5'	1,				×	238/6	11	418	
	15' 15 5'	1,				×	23817	1,	418	1/204
FIELD DISF		Samp	len	00,	40	2,	nd ine	that	arrived u	villatho
IMMEDI	ATE DELIVERY	ü	e m	ette	/.	ju ju.	1/28/00	SECURED STYE		1/28/8
STORAG			<i>*</i>	1 . 1	Alion	nti	pollet	SECURED REYE	Ill cer 4	mmahd
RELINQUIS) ID	- ' '	REC	EIVED B	3Y:*	70000	· / LO NE	DATE	
E	namura Fablica							1	1-27-87	
RELINQUIS		7		REC	EIVED E	3Y:*	····	1	DATE/	TIME
		•								
RECEIVED	FOR LABORATORY BY:	1	<u> </u>						1/28/89	12100
METHOD (OF SHIPMENT:	wien		2					17-701	1 2700
WILLINGS (Alr	Fre	igh f	<u>_</u>			(
LABORATO	ORY DISPOSITION:					 .				
IMMEDIAT	E ANALYSIS 🗆	STOR	AGE 🗆			REF	RIGERATOR	aı		SECURED
							EZER	□ ID		
			/	1		CAE	BINET	□ ID	L	YES NO
PRINT NA	AME AFTER SIGNATURE		(, * <u>/</u>	Bugg	Pb b	> SFLC A	equested to	be run p
≜		•		(tal I	ED 21	858	48 M TAI	5A0
	McLaren Env	rironmental	Engin	eerin g				M	, p.	
	11101 White F	lock Road.	Rancho	Cordo	va, CA	9567	0 (916) 63	38-3696		

McLaren Analytical Laboratory
Chain of Custody Record McGramhon & Carlson

RUSH

PROJECT D	DESIGNATION MC	40		_			MPLES TAK	EN BY: EM	runuel Fu	hhour
					MPLE T	YPE				
AREA	SAMPLE LOCATION	DATE	TIME		GRAB	SOIL	SAMPLE NO.	TYPE CONTAINER(S)	ANALYS REQUIR	
33	17.5-18	01-2789				X	23818	Breat	418	1. (204
	20.5'-21'	01-274				X	23/19	8270 4128	14 K8	1/20
B4	6'-6.5'	(×	23820	ARROL ZIZYZ	418.1,	Parc P
	10.5'-11'					X	73821	11	412	8.1(204
	13.5-14					X	23852	1/	418	1/204
	-15.6-15.5					X	23823	4	418	1/204
BI	35-4					X	23824	ή .	70460	Fire. Pe
	6.5'-7'					X	23825	()	418	
	8'-8.5'					X	23826	1/	418.	
	12.5-13.				,	X	23827	4	418	
IMMEDIA STORAG	ATE DELIVERY	## 5 m	ampl whe	w who	to pu	iveb out	run bor pollit	1-ut th 8240/827 SECHRED EYES W LANGE	0/ 8080 M.N.	had me 1/2x/ F. 1/2
RELINQUISI	_			REC	EIVED B	Y:•			DATE/	TIME
	anuel Fahkoary			ļ			•			
RELINQUISI	HED BY:			REC	EIVED B	Y:*			DATE	TIME
RECEIVED I	FOR LABORATORY BY:	Dere	hu						DATE	TIME 12.100
METHÓD OF	FSHIPMENT: Aly Field	yht	<u>, , , , , , , , , , , , , , , , , , , </u>						10 000	
LABORATO	RY DISPOSITION:	J			······································					
IMMEDIATE	ANALYSIS	STORA	GE 🗆			REF	RIGERATOR	. ID		SECURED
				,		FRE		O ID		
PRINT NAM	ME AFTER SIGNATURE					CABI	INC I	□ ID		YES MC
					e e					



McLaren Environmental Engineering

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696

APPENDIX C

SOIL BORING LOGS

 SB/MW
 #_SB-5-5A-I

 #_D 1310

 Page___1___of__2
 2

 Sampler:
 T. BERGER

ROJECT MCGRANAHAN 4.0 LOCATION SANTA FE SPRINGS, CA LEVATION GRADE MONITORING DEVICE TIP, LEL. DRAEGER
AMPLING DATE(S) 3/22/89 START 7:30 AM FINISH 10:40 AM
AMPLING METHOD <u>CA. MOD. SPLT. SPN.</u> SUBCONTRACTOR & EQUIPMENT <u>GREGG / B-53</u> IEMO <u>PARKING LOT OFF SHOEMAKER AT RAILROAD TRACKS</u> .

3elow (ft.)	Penetration Results	n	ımpler Depth Interval (ft.)		(mdd)	Soil Description	Unified assification	clog	Sampled Depth	Borehole Abandonment/ Well Construction
Depth Below Surface(ft.)	Blows 6"-6"-6"	ВРF	Sampler Interva	Sample ID#	Tip reading (ppm)	Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sample	Details
-						0.0'-0.3' Asphalt				
- 5	13-16-17		5.0- 6.5	24661		0.0'-8.0' Clayey silty sand: dark yellowish brown (10YR 4/4); 40% fine-grained sand; 20%silt; 20% clay; slightly damp.	sc			_
- - 10 - -	21-36-46		10.0- 11.5	24662	160	8.0'-15.5' Silty sand: very dark greyish -brown (10YR 3/2); 80% very coarse to medium grained, subangular, poorlysorted sand; 10% silt; 10% clay; >>PHC; oily.	SM		-38,88	_ Enviroplug
—15 - -	9-16-30		15.0- 16.5	24663		@ 8.0' hit sludge: odor			288833	-
- - 20 -			20.0- 21.5	24664		15.5'-25.0' Clayey silt: Light yellowish brown (2.5YR 6/4); 70% silt; approximately 30% low-plastic clay; slightly damp.	CL.			-
- 25 - -	14-32-50		25.0- 26.5	24665		25.0'-27.0' Clayey silt: greenish grey (5GY 5/1); 70% silt; 30% clay; slightly damp.	a.			-
- -30	21-48-50		30.0- 31.5	24666	13	27.0'-34.5' Silty sand; (Continued on page 2)	SM			-



SB/MW # <u>SB-5-5A-I</u>
<u>D- 1311</u>
Page <u>2 of 2</u>
Sampler: <u>T. BERGER</u>

PROJECT McGRANAHAN 4.0 ELEVATION GRADE	LOCATION SANTA FE SPRINGS, CA MONITORING DEVICE TIP, LEL, DRAEGER
SAMPLING DATE(S) 3/22/89	START 7:30 AM FINISH 10:40 AM
	SPLT. SPN. SUBCONTRACTOR & EQUIPMENT GREGG / B-53 EMAKER AT RAILROAD TRACKS.

Depth Below Surface(ft.)	Penetration Results Blows		Sampler Depth Interval (ft.)	Sample ID#	Tip reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
Sur	6"-6"-6"	3d8	Sar	Sar	rea		ਠੌ	Ö	Sar	
-						27.0'-34.5' Silty sand: greenish-grey (5G 5/1); 80% fine-grained sand; 20% silt; slightly damp.	SM			
35 - - -	11- >50		35.0- 36.5	24667		34.5'-40.0' Sand: greenish grey (5GY 6/1); mediumgrained; subangular to subrounded; granitic source; slightly damp.	sw			
- 40 - - - - - - -	12-21-27		40.0- 41.5	24668			·			∠ Enviroplug
50	11-30-44		50.0- 51.5	24669		40.0'-58.0' Clayey silt: greenish grey (5G 5/1);70% silt; 30% clay; slightly damp.	a			
- 35 - - - - 60	20-90		60.0- 61.5	24670		58.0'-60.0' Silty sand: greenish grey (5G 6/1); 80% sand; 20% silt; medium-grained; granitic source; slightly damp. Boring terminated at 60.0'	SM			TD = 60.0'



 SB/MW
 # SB-6-5B-I

 # D- 1312

 Page 1 of 2

 Sampler: T. BERGER

AMPLING	N <u>GRAI</u> DATE(S)_	 ONITORING	DEVICE	1:10 AM	FINISH 1:45 F	M T_GREGG / B-53
MEMO						•

Below e(ft.)	Penetration Results	n	Sampler Depth Interval (ft.)	6	Tip reading (ppm)	Soil Description	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction
Depth Below Surface(ft.)	Blows 6"-6"-6"	BPF	Sample	Sample ID#	Ti reading	Color, Texture, Moisture,Etc.	Un Classi	Graph	Sample	Details
5	2-3-6		5.0- 6.5	24671	87	0.0'-7.0' Sand: light olive brown (2.5Y 5/4); fine-medium grained, poorly-sorted sand; minor silt; granitic source; slightly damp.	sw			-
- - - 10 -	14-16-30		10.0- 11.5	24672	15	7.0'-13.0' Clayey silt: light yellowish brown (2.5Y 6/4); 80% silt; <20% clay; minor sand; some gravel; dry.	CL.			- Enviroplug
- 15 - -	20-50		15.0- 16.5	24673	14					- -
- - 20 -	23-50		20.0- 21.5	24674	13	13.0'-29.0' Silty sand; greenish grey (5GY 5/1); 80% very fine-grained sand; <20% silt; minor day; slightly damp.	SM			
- 25 - -	33- > 50		25.0- 26.5	24675	7					-
_ 30	23-50		30.0- 31.5	24676	24	29.0'-35.0' Silty sand: (Continued on page 2)	SM			-



 SB/MW
 # SB-6-5B-I

 # D- 1313

 Page 2 of 2

 Sampler: T. BERGER

ELEVATION GRADE MONIT	LOCATION SANTA FE SPRINGS, CA ORING DEVICE TIP, LEL START 11:10 AM FINISH 1:45 PM SPN. SUBCONTRACTOR & EQUIPMENT GREGG / B-53
WEWO	·

L	<u> </u>									
Depth Below Surface(ft.)	Penetration Results	,	Impler Depth Interval (ft.)	10	Tip eading (ppm)	Soil Description	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction
Depth Surfac	Blows 6"-6"-6"	BPF	Sampler Interval	Sample ID#	readin	Color, Texture, Moisture, Etc.	Class	Grap	Sam	Details ,
-			35.0-	77		29.0'-35.0' Silty sand: olive (5Y 5/3); 80 % very fine grained sand; 20% silt; slightly damp.	SM			_
-35 -	56->60		36.5	24677	6	35.0'-37.0' Sand: olive grey (5Y 5/2); fine to very fine	sw			
-			40.0-	æ		grained sand; poorly- sorted; subrounded; granitic source;slightly damp.				_
-40 - - - -45 -	30-100		41.5	24678	6.5	37.0'-48.0' Silty sand: dark greenish grey (5BG 4/1); 80% fine to medium grained sand; poorly-sorted; 20% silt; slightly damp.	SM			Enviroplug
-50 -50 55	33- >100		50.0 51.5		6.7	48.0'-57.0' Sandy silt: greenish grey (5GY 5/1); 70% silt; < 30% very fine grained sand; minor clay; slightly damp.	ML			
+						57.0'-60.0' Silty sand: greenish grey (5G 6/1); 80% fine to		Щ		
-			60.0	. 80		very coarse grained sand; poorly-sorted; subangular to subrounded; 20% silt; dry.	SM			TD = 60.0'
-60	40-80		61.5	24680	5	Boring terminated at 60.0'				



ELEVATION GRADE MONI	_ LOCATIONSANTA_FE_SPRINGS; CA DRING DEVICE_TIP, LEL START_7:15_AMFINISH_9:05_AM SPNSUBCONTRACTOR & EQUIPMENT_GREGG / B-53
MEMO	

Selow (ft.)	Penetration Results	ו	Sampler Depth Interval (ft.)	,	(ppm)	Soil Description	Unified Classification	c Log	Sampled Depth	Borehole Abandonment/ Well Construction
Depth Below Surface(ft.)	Blows 6"-6"-6"	BPF	Sample Interv	Sample ID#	Tip reading (ppm)	Color, Texture, Moisture, Etc.	Uni Classif	Graphic Log	Sample	Details
-						0.0'-4.0' Silty clay: yellowish brown (10YR 5/4); 30-40% silt; 60-70% clay; dry.	аL			
5 	5-8-10		5.0- 6.5	24681	23	4.0'-8.0' Silty sand: olive grey (5Y 4/2); 60% very fine grained sand; 30% silt; 10% day; slightly damp.	SM			
- 10 - 10	30-35-40		10.0- 11.5	24682	380	8.0'-14.0' Silty sand: greenish grey (5GY 5/1); 80% very fine grained sand; < 20% silt; minor clay; slightly damp.	SM			✓ Enviroplug
—15 -	12-39-50		15.0 16.5	24683	440	14.0'-23.0' Silty sand: greenish grey (5GY 5/1); fine to medium grained sand; poorly sorted;	SM			
20	22-27-50		20.0 21.5		250	subrounded; granitic source; slightly damp.				-
25	23-34-49		25.0 26.5		140	23.0'-29.0' Silty sand: greenish grey (5GY 5/1); 80% very fine grained sand; < 20% silt; minor clay; slightly damp.	SM			-
30	12-16-24		30.0 31.5		70	29.0'-33.0' Clayey silt: (Continued on page 2)	мн			-



SB/MW # <u>SB-7-5B-E</u> # <u>D- 1315</u> Page <u>2</u> of <u>2</u> Sampler: <u>T. BERGER</u>

PROJECT McGRANAHAN 4.0 ELEVATION GRADE MC SAMPLING DATE(S) 3/23/89 SAMPLING METHOD CA. MOD. 5 MEMO	ONITORING DEVICE <u>TIP, LEL</u> START 7:15 AM	

Depth Below Surface(ft.)	Penetration Results	n	Sampler Depth Interval (ft.)	0	Tip reading (ppm)	Soil Description	Unified	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction
Depth Surfac	Blows 6"-6"-6"	BPF	Sampl Inter	Sample ID#	readin	Color, Texture, Moisture, Etc.	Class	Grap	Samp	Details
-						29.0'-33.0' Clayey silt: greenish grey (5BG 5/1); 70% silt; < 30% clay; minor fine grained sand; slightly damp.	мн			
- 35	29-50		35.0- 36.5	24687	110	33.0'-49.0' Sand: greenish				-
- - 40 -	45-50		40.0- 41.5	24688	230	grey (5GY 5/1); very fine to coarse grained sand; poorty-sorted; subangular to subrounded; granitic source; slightly damp.	sw			Enviroplug
-45	·					@ 40.0' Sand is moderately well sorted; medium to coarse grained; subrounded.				-
Z						Water @ 48.0*				
-50 -	14-37-41		50.0- 51.5		52	49.0'-50.0' Silty sand: greenish grey (5GY 5/1); 80% very fine grained sand; <20% silt; minor day; slightly damp.	SM			TD = 50.0' _
55 						Boring terminated at 50.0°				
-60										



 SB/MW
 # SB-B3 / SB-8-2-B

 # D 1305 / 1307

 Page
 1
 of
 2

 Sampler:
 T. BERGER

PROJECT McGRANAHAN 4.0 LOCATION SANTA FE SPRINGS, CA ELEVATION GRADE MONITORING DEVICE TIP, LEL SAMPLING DATE(S) 1/27/89 START 7:15 AM FINISH 9:05 AM SAMPLING METHOD CA. MOD. SPLT. SPN. SUBCONTRACTOR & EQUIPMENT (MEMO SB-B3: 0.0'-23.0'; SB-8-2-B: 23.0'-TD	GREGG / B-53

Depth Below Surface(ft.)	Penetration Results Blows 6"-6"-6"		Sampler Depth Interval (ft.)	Sample ID#	Tip reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
- - - - - - -	•		7.5- 8.0	23815	350 305 250 250	0.0'-11.0' No sample recovered in upper 5.0'; hand auger to verify underground utility clearance; upper 5.0' contains sludgy material. @ 3.0' Soil was dark in color, strong odor, sludgy material, stains, strong peteroleum odor.				Enviroplug
- - - - -15		07	12.0- 12.5 15.0- 15.5 17.5 18.0	18 238	20	11.0'- 18.0 Loamy fine sand: dark stains; odor.	SM			Enviroping
20		05	1	319		18.0'-19.5' Sand: ∞arse grained. 19.5'-23.0' Sand: very ∞arse grained.	SP/ SM			
- - 25 -	33-50		25.0 26.5	246		23.0'-30.0' Sand: medium to very coarse grained; poorly- sorted; slightly damp. (lost samples twice)	sw			-
-30	29-50		30.0 31.5		20	(Continued on page 2)				-



SB/MW # SB-8-2-B # D- 1316 / 1317 Page 1 of 2 Sampler: T. BERGER

CAMPI INC	GRAI)E	MONITORIN	OCATION_SA IG DEVICE_TI START_2:05 I NSUBCOI	IP, LEL	SPRINGS, CA FINISH <u>3:45 PM</u> DR & EQUIPMENT_	GREGG / B-53
	•						
•							

Depth Below Surface(ft.)	Penetration Results Blows 6*-6"-6"	BPF	Sampler Depth Interval (ft.)	Sample ID#	Tip reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified	Classification Graphic Log Sampled Depth		Borehole Abandonment/ Well Construction Details
-						30.0'-34.0' Sand: pale olive (5Y 6/3); very fine to medium grained; poorly-sorted; subangular to subrounded; granitic source; slightly damp.	sw			
- 35 - -	18-38-50	5	35.0- 36.5	24695	8.3	34.0'-37.0' Silty sand: olive grey (5Y 5/2); 70% fine to medium grained sand; subrounded; 20% silt; 10% clay; damp.	SM			
- 40 -	32-50		40.0- 41.5	24696	45	37.0'-60.0' Sand: greenish gray(5GY 5/1); very fine to very coarse grained;poorly	sw			- Enviroplug
- 45 -	50-50		45.0- 46.5	24697	10.5	sorted; gravel up to5 mm.; damp.				
- - - 50 -	50-50		50.0- 51.5	24698	27	@ 50.0' gravel size increasing to 1 cm.				_
- - 55 -	32-50		55.0 56.5	24699		@ 55.0' gravel absent; pre- dominantly medium grained sand.				- -
F 60	41-50		60.0- 61.5	24700		Boring terminated at 60.0'		(3+,3+, (3+,3+, (3+,3+,		TD = 60.0' _



SB/MW # SB-9-3-E # D- 1318 Page 1 of 2 Sampler: T. BERGER

PROJECT_ ELEVATION			LOCATION		SPRINGS, CA	
SAMPLING	DATE(S)	3/24/89	START_12:	25 PM	FINISH 1:45 PM OR & EQUIPMENT GREGG / B-	53
· _						

lelow (ft.)	Penetration Results	n	Depth		(ppm)		ied cation	. Log	Sampled Depth	Borehole Abandonment/
Depth Below Surface(ft.)	Blows 6"-6"-6"	BPF	Sampler Depth Interval (ft.)	Sample ID#	Tip reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sample	Well Construction Details
- 5	5-4-6	-	5.0- 6.5	24701	38	0.0'-8.0' Silty sand: dark olive grey (5Y 3/2); 70% very fine grained sand; < 30% silt; minor clay; slightly damp.	SM			
- - 10 - -	10-20-29		10.0- 11.5	24702	12.5	8.0'-14.0' Clay: olive (5Y 4/3); minor silt; slightly damp.	CL.			∠ Enviroplug
- 15 -	13-25-26		15.0- 16.5	24703		14.0'-35.0' Silty sand: olive grey (5Y 5/2); 80% fine	SM			-
- - 20 -	14-22-27		20.0- 21.5	24704	24	grained sand; 20% silt;slightly damp. @ 20.0' coarse fraction increasing.	Sivi			-
- 25 - -	12-23-27		25.0- 26.5	24705	33	@ 25.0' coarse fraction is dominant, with gravel up to 5mm.; color more olive.				-
-30	16-21-25		30.0- 31.5	24706	12	(Continued on page 2)			·	-



SB/MW # <u>SB-9-3-E</u> # D- 1318 Page 2 of 2 Sampler: T. BERGER

PROJECT_ ELEVATION SAMPLING SAMPLING MEMO	GRAI)E	MONITO	RING DE'	/ICE_TI	P. LEL	PRINGS, CA FINISH 12:40 PM R & EQUIPMENT GREGG / B-53
-							

L										
elow (ft.)	Penetration Results	n	r Depth al (ft.)		(mdd)	Call Departmen	Unified Classification	gojo	Sampled Depth	Borehole Abandonment/ Well Construction
Depth Below Surface(ft.)	Blows 6"-6"-6"		Sampler Depth Interval (ft.)	Sample ID#	Tip reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unit Classif	Graphic Log	Sample	Details
-	18-24-50					(Continued from page 1) @ 30.0' olive grey (5Y 5/2); Sand is predominantly medium grained and subrounded.	SM			_
-35 - - -			36.5 40.0-	08 24707		35.0'-40.0' Silty sand: dark greenish grey (5G 4/1); 70% very fine grained sand; 20% silt; 10% clay; slightly damp.	SM			
-40 - - - -45	24-50		41.5	24708	4	40.0'-60.0' Sand: olive grey (5Y 5/2); Medium grained and subrounded;slightly damp.	SP			∠ Enviroplug
50	26-50		50.0- 51.5	24709	4.5	@ 50.0' dark greenish grey (5G 4/1);coarse fraction increasing to 40%; some gravel up to 1 cm.; slightly damp.				
- - - 60	37-50		60.0 61.5	1 ~	3.9	@ 60.0' predominantly medium-grained sand. Boring terminated at 60.0'				TD = 60.0' _



SB/MW # SB-10-4-A # D- 1320 Page 1 of 2 Sampler: T. BERGER

PROJECT McGRANAHAN 4.0 LOCATION SANTA FE SPRINGS, CA ELEVATION GRADE MONITORING DEVICE TIP, LEL SAMPLING DATE(S) 3/24/89 START 9:20 AM FINISH 11:00 AM SAMPLING METHOD CA. MOD. SPLT. SPN. SUBCONTRACTOR & EQUIPMENT GREGG / B-53 MEMO

Selow (ft.)	Penetration Results	1	Sample Depth Color, Texture, Moisture,Etc		Soil Description	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction	
Depth Below Surface(ft.)	Blows 6"-6"-6"	BPF	Sample Interv	Sample ID#	Color, Texture, Moisture,Etc.		Un Classi Graph		Sample	Details
- - - - 5	3-4-6		5.0- 6.5	24711	82	0.0'-8.0' Silty sand:olive grey (5Y 5/2); 70% very fine grained sand; 20% silt; 10% clay; slightly damp.	SM			
- - - 10 - -	4 -9-18		10.0- 11.5		130	8.0'-14.0' Sandy silt: dark greenish grey (5GY 4/1); 60-70% silt; 30% very fine to medium grained; poorty sorted sand; 10-20% clay; slightly damp.	ML			✓ Enviroplug
- - - -	18-28-41		15.0 16.5		66	14.0'-18.0' Clayey silt: green- ish grey (5GY 5/1); 70% silt; < 30% clay; minor sand; slightly damp.	a.			
- - - - -	10-16-21		20.0 21.5	247	38	18.0'-24.0' Silty sand: light olive grey (5Y 6/2); 80% very fine grained sand; 20% silt; slightly damp.	SM			
- - 25 - -	11-31-28		25.0 26.5	247	33	24.0'-30.0' Sand: olive grey (5Y 5/2); fine grained; mod- eratly 1well sorted; subroun- ded; granitic source; slightly damp.	SP			
-30	13-19-27		30.0 31.5		120					



SB/MW # <u>SB-10-4-A</u>
<u>D- 1323</u>
Page <u>2 of 2</u>
Sampler: <u>T. BERGER</u>

PROJECT_ ELEVATION				ION <u>SANTA</u> EVICE <u>TIP. LE</u>	FE SPRINGS, CA	
SAMPLING	DATE(S)_	3/24/89 CA. MOD. SP	STAI	RT 9:20 AM	FINISH_11:00 A	
						· · · · · · · · · · · · · · · · · · ·

Depth Below Surface(ft.)	Penetration Results		Sampler Depth Interval (ft.)	ejd. #	Tip reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
Dept Surfa	6"-6"-6"	∃d8	Sam	Sample ID#	readi	COOF, Texture, Moisture, Etc.	J RO	Gra	Sam	Details
- - - -35	13-32-38		35.0- 36.5	24725	22	30.0'-38.0' Silty sand: greenish grey (5GY 5/1); 80% sand; poorly sorted; subrounded; granitic source; 20% silt. @ 35.0' color more olive; coarse fraction increasing.	SM			
- 40 -	28-50		40.0- 41.5	24726	6	38.0'-57.0' Silty sand: dark				_ Enviroplug
-45 -						greenish grey (5GY 4/1); 80% sand;poorly sorted; subrounded;granitic source; 20% silt; slightly damp.	SM			-
- -50 -	18-30-50		50.0- 51.5	24727	5.8	@ 50.0' medium grained sand; minor silt.				-
55 - - -	ŕ		60.0	88		57.0'-60.0' Sand: greenish grey (5G5/1); fine to very coarse grained; poorly sorted; subangular to subrounded; 20% gravel; dry.	sw			TD = 60.0°
60	38-50		60.0- 61.5	24728	8.5	Boring terminated at 60.0'		<u> </u>		ID = 60.0° _



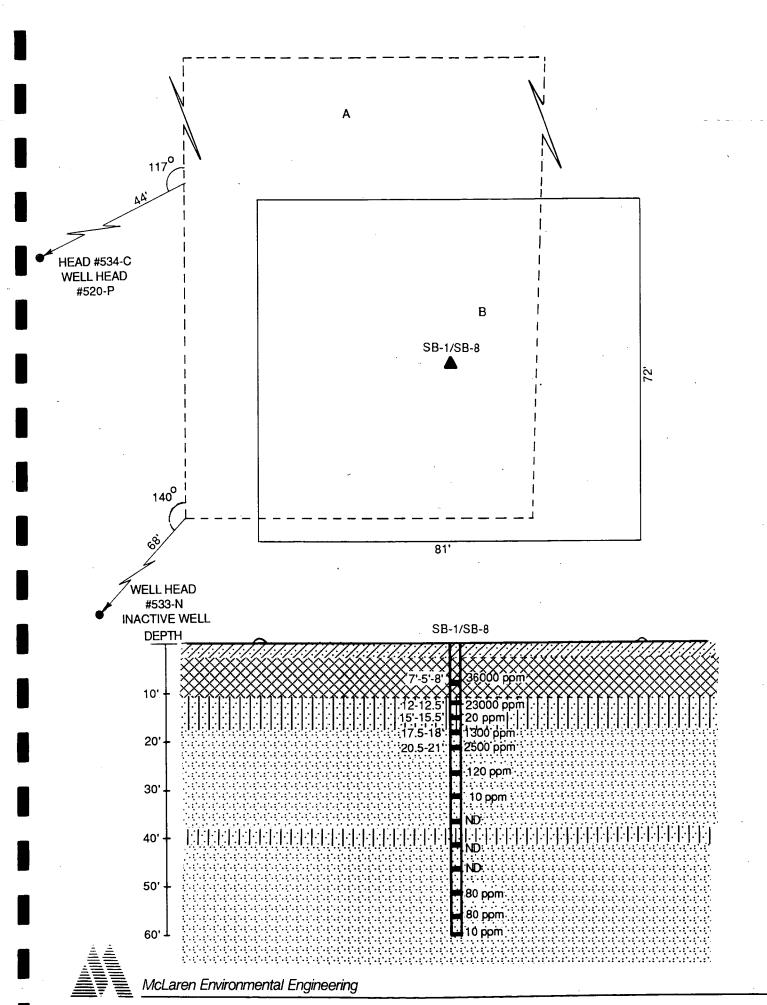
APPENDIX D

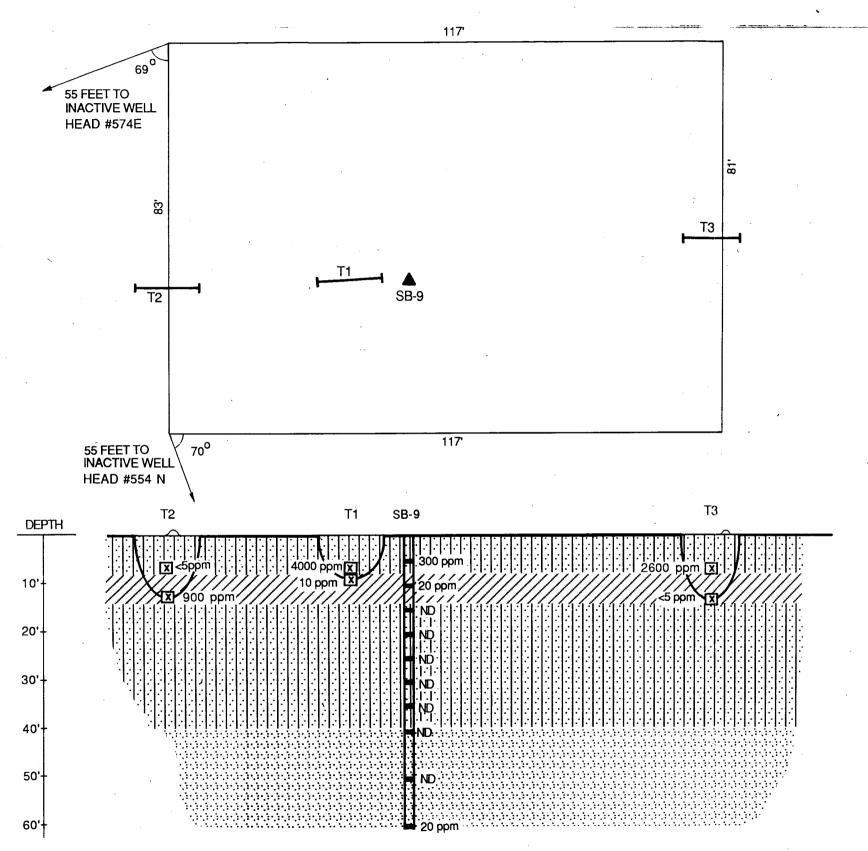
CROSS SECTIONS

Figure	1:	Soil	Containing	Crude	Oil	in	Area	2	Sump	В
Figure	2:	Soil	Containing	Crude	Oil	in	Area	3	Sump	E
Figure	3:	Soil	Containing	Crude	011	in	Area	3	Sump	F
Figure	4:	Soil	Containing	Crude	Oil	in	Area	4	Sump	Α
Figure	5:	Soil	Containing	Crude	Oil	in	Area	5A	Sump	I
Figure	6:	Soil	Containing	Crude	Oil	in	Area	5B	Sump	E
Fionre	7.	Soil	Containing	Crude	011	in	Area	5 R	Cump	. т

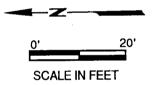


	**
T1A3E51	SAMPLE ID
T-1	TRENCH
X	SOIL SAMPLE LOCATIO
•	SOIL BORING
10.000	SAND (SW)
	SLUDGY MATERIAL
	SANDY CLAY (SP/SM)
	SILTY SAND (SM)





TRENCH	DEPTH (FT)	SAMPLE IDENTIFICATION	TPH (ppm)
T1	6	T1A3ES1	4000
	8	T1A3ES3	10
T2 ·	6	T2A3ES1	<5
	12	T2A3ES1	900
ТЗ	6.5	T3AES1	2600
	12.5	T3A3ES3	<5



T1A5BES1

SAMPLE ID

T-1

TRENCH

SOIL SAMPLE LOCATION

SOIL BORING.



SAND (SW)

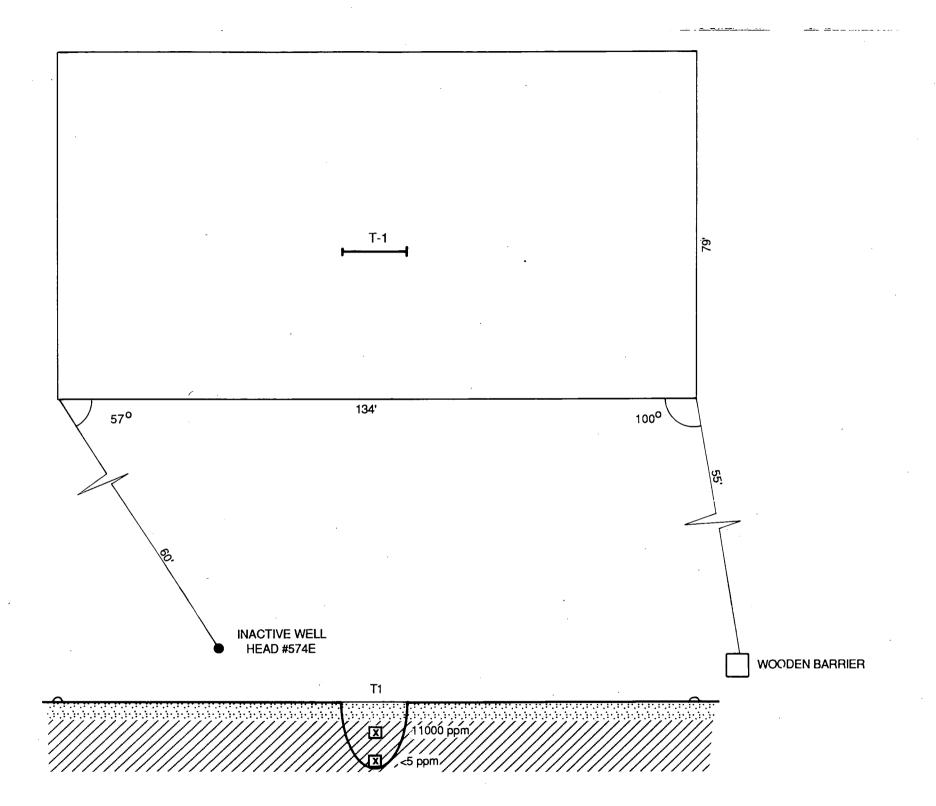


SILTY CLAY (CL)

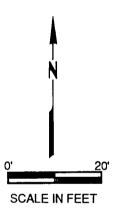


SILTY SAND (SM)





TRENCH	DEPTH (FT)	SAMPLE IDENTIFICATION	TPH (ppm)
T1	5	T1A3FS1	11000
. T1	13	T1A3FS3	<5



T1A5BES1

SAMPLE ID

<u>T-1</u>

TRENCH

X

SOIL SAMPLE LOCATION

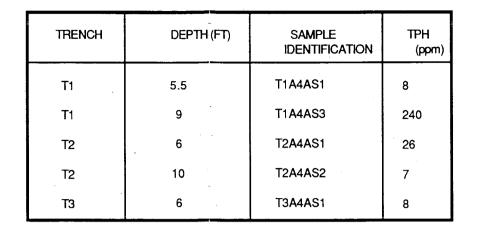


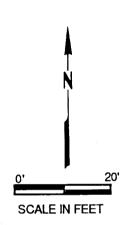
SAND (SW)



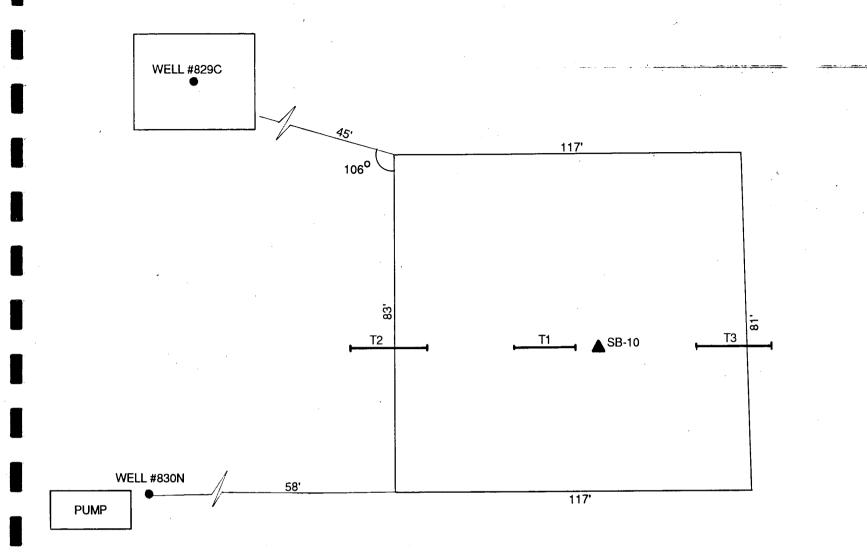
SANDY CLAY (CL)





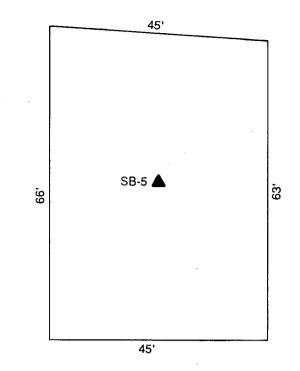


T1A5BES1	SAMPLE ID
T-1	TRENCH
HX	SOIL SAMPLE LOCATION
A	SOIL BORING
0.000.00.00 0.000.000.00	SAND (SW)
	CLAYEY SILT (MH)
	SILTY SAND (SM)
	SANDY SILT (SP)

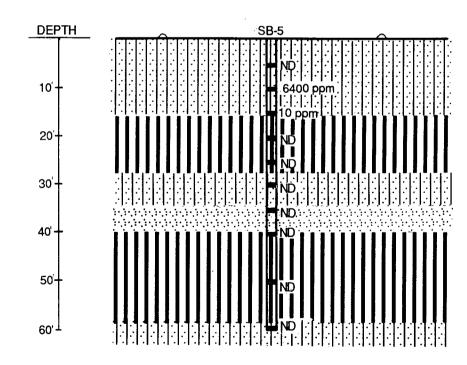


DEPTH	T2	T1	SB-10	Т3
10'		3m 🗵	ND	₹ 8 ppm
20'-				
30'-			ND III	
40'-			ND	
50 +			ND NO	

APPENDIX D FIGURE 5 SOIL CONTAINING CRUDE OIL IN AREA 5A SUMP I



● WELL HEAD #712C





LEGEND



SOIL SAMPLE LOCATION



SOIL BORING



SAND (SW)

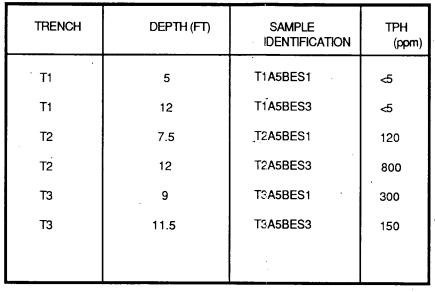


SILTY SAND (SM)



CLAYEY SILT (MH)



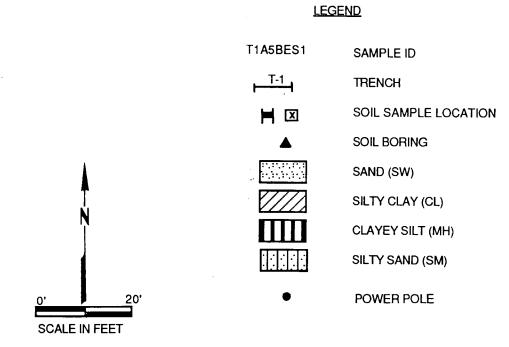


TRENCH	DEPTH (FT)	SAMPLE IDENTIFICATION	TPH (ppm)
11	5	T1A5BES1	5
T1	12	T1A5BES3	<5
T2	7.5	T2A5BES1	120
T2	12	T2A5BES3	800
T3	. 9	T3A5BES1	300
T3	11.5	T3A5BES3	150
		<u>.</u>	

DEPTH	Т3	SB-7 T1	T2	
10 +	- - - - - - - - - -	100 ppm - : : : : : : : : : : : : : : : : : :	x 120 ppm x 800 ppm	
20 +		1100 ppm		
30		300 ppm		
40 +		200 ppm		
50 				

T-3

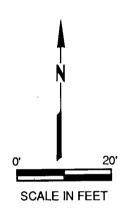
T-2





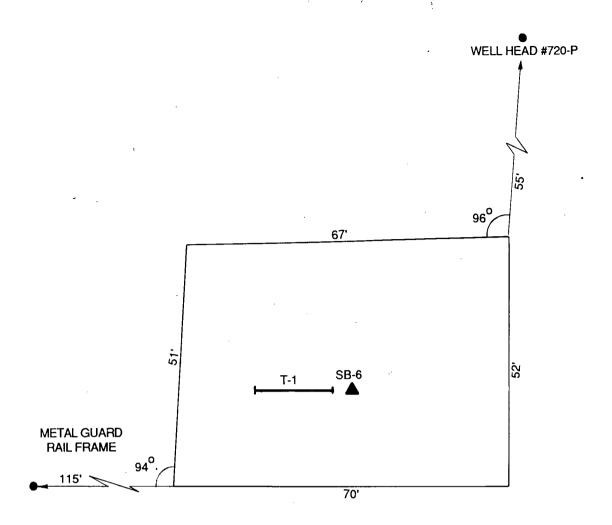
APPENDIX D FIGURE 7 SOIL CONTAINING CRUDE OIL IN AREA 5B SUMP I

TRENCH	DEPTH (FT)	SAMPLE IDENTIFICATION	TPH (ppm)
T1	5	T1A5BIS1	7
T1	,11	T1A5BIS3	5000
T1	14	T1A5BIS5	3400



LEGEND

T1A5BES1	SAMPLE ID
T-1	TRENCH
	SOIL SAMPLE LOCATION
A	SOIL BORING
	SAND (SW)
	CLAYEY SILT (MH)
	SILTY SAND (SM)
	SANDY SILT (SP)



DEPTH	T-1 SB-6
	7 ppm (🔟 ND
10'	5000 ppm X ND ND ND ND ND ND ND
20'-	
30' +	
40'-	5 ppm - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
50'-	
_{60'} _	

